# MINING

CONGRESS JOURNAL



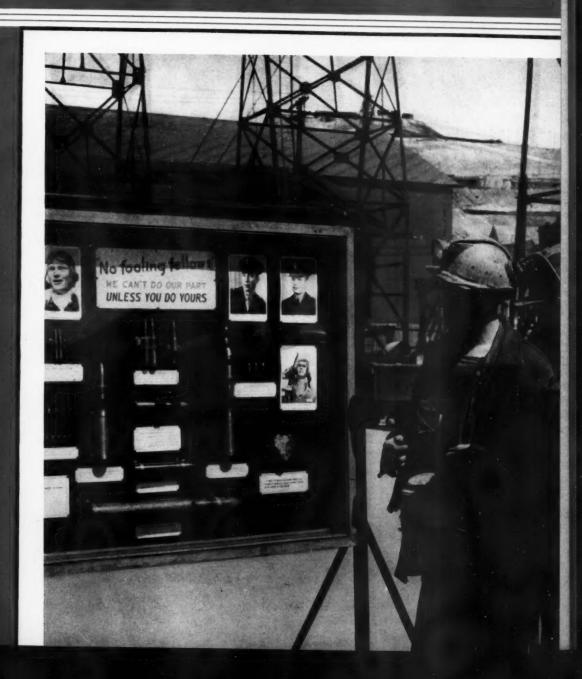
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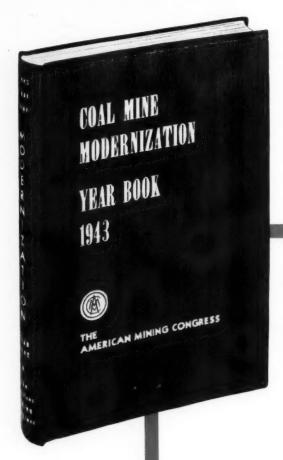


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### MINING CONGRESS JOURNAL

VOLUME 29, NUMBER 8

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#### FOR AUGUST 1943

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What about blood donations by war workers? This question is on the mind of every executive and worker and the Medical Committee of Industrial Hygiene Foundation recently made a survey to determine if giving a pint of blood is hazardous for the worker, such as making him more susceptible to a cold.

Results indicated that there is virtually no potential hazard in taking the standard pint of blood. Red Cross authorities have taken more than 2,000,000 pints of blood and report that success is due to adhering to rigid donor requirements from which they do not deviate. The Red Cross does, however, have a general policy not to bleed any industrial worker who must return to work with dangerous machinery within 8 hours after the donation.

FRONT COVER: A display of shells and bullets near the shaft of a large copper mine carries a message of importance to every miner.

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Opinions expressed by authors within these pages are their own, and do not necessarily represent those of the American Mining Congress.



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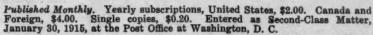
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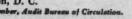
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Manufacturers Forum ......





# In War, as



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The mysterious Radar, the Walky-Talkies—the great modern Aircraft Carriers—the fine American-built Bombers—products of modern science and American ingenuity are helping this Nation to Victory.

Modern Equipment is just as vital to industry—in peace as well as war—for labor-saving, output-boosting mechanical equipment is necessary to meet today's and tomorrow's competitive demands.

## in Peace



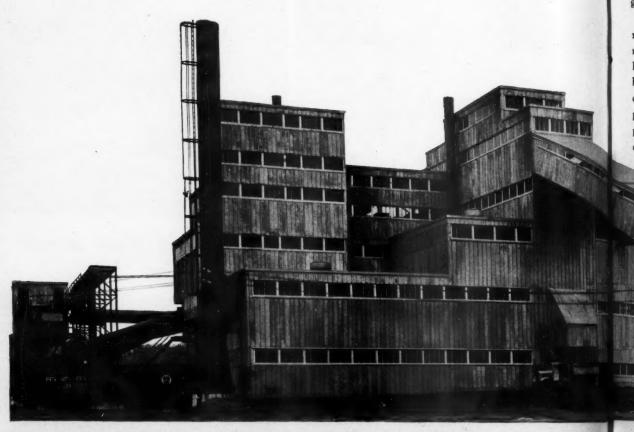


Joy Wechanized Units prove their worth on peak load production



goy Engineer

# They darned a rip a quarter of a mile long to keep coal moving to war industries





Here is the alope belt that carries coal from underground operations to the top of the coal preparation plant. The belt is 4ft, wide and 1450 ft. long... more than a quarter of a mile. The entire coal output of the mine is carried on this extra strong belt.



The accident occurred just behind this dust screen. The firmly wedged, sharpened jack pipe acted as a perfect cutting tool... aided by the 250-hp. drive of the belt motor. No belt is made strong enough to withstand such punishment.



This is the spear-shaped head of the 8-foot, heavy steel jack pipe that fell into the rotary coal dust, and pierced the belt and the steel decking. Is flange became wedged so firmly that the jad pipe had to be cut free with acetylene tords.

UNITED STATES

This million dollar coal preparation plant is one of the units that is enabling the coal mining industry to increase its output approximately ten per cent this year. Here, coal is washed, graded and prepared for shipment.

It's a tremendous plant...but its uninterrupted operation depends on the smooth functioning of the conveyor belt that carries coal from far below the surface of the earth to the top of the plant itself where grading and cleaning processes start.

Not long ago an unusual accident occurred which ripped more than 1400 feet of this extra strong belt. A newly sharpened steel jack pipe hurtled down with a load of coal. It pierced the belt and the steel decking beneath it...became firmly wedged between this sheet of steel and the coal-crushing rolls. But the 250-horse-power belt-drive motor droned on...drove the belt past this perfect cutting tool. When the damage was discovered and the belt stopped...plant operations

came to a standstill. Shipments of fuel, vital to America's war industries and railroads, were halted.

Immediately the plant superintendent telephoned United States Rubber Company. Would the plant have to shut down until a new belt was built, shipped and installed? Or...could it be repaired? They said it could... made suggestions which were promptly carried out ...4600 rip plates required to do the job were rounded up by the local distributor of industrial supplies. The United States Rubber Company representative went to the plant ... stayed on the job continuously until it was completed.

Twenty-five and one-half working hours later the plant was in full swing again. Coal flowed steadily from the mine. The quarter-mile rip had been darned... valuable rubber and equipment conserved...invaluable time gained.





The belt was repaired by bolting rip plates of thin steel through it. More than 4600 were used ... approximately a ton of steel. The local distributor furnished the first supply; and arranged emergency shipments from factory stock.

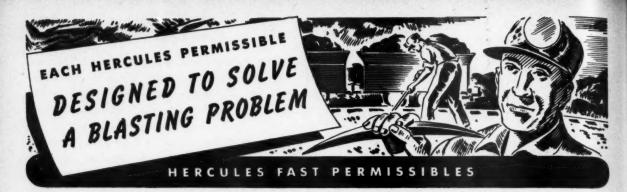


After the belt was repaired, it looked like this.
The long rip has been darned successfully. The picture was taken after a test run of the belt had been completed satisfactorily and operations were ready to go into full swing again.



The plant is now working at top speed. Valuable time was saved ... and very valuable rubber and equipment conserved. United States Rubber Company representatives and engineers are always on call ... ready to step into the breach.

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Wherever a smashing effect is desired, such as in rock work or hard-shooting coal, RED HB offers many advantages. It is a very quick, dense, and strong powder with a count of 280 cartridges per 100 pounds.



#### COLLIER C\*

A strong, fast explosive for rock work or fine coal production. It has a higher cartridge count than Red H B-320 cartridges per 100 pounds.

#### HERCULES SLOW PERMISSIBLES



#### HERCOAL\* F-1

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#### HERCOAL\* D

The properties of HERCOAL D are very similar to those of Hercoal F-1 with the exception of a slightly lower cartridge count of 450 cartridges per 100 pounds.



#### HERCOAL\* C-1

For coal that is harder and less friable, HERCOAL C-1 is better suited than Hercoal F-1 and Hercoal D. Because of its internal cushioning effect it is a good coarse coal producer. 400 cartridges per 100 pounds.



#### RED H\*F

A general all-around explosive with exceptional popularity in many types of mines. It is a slow-acting permissible with a count of 356 cartridges per 100 pounds.



#### RED H\*D

Hercules RED H D is a slow powder with a greater bulk strength than Red H F and a lower bulk strength than Red H C. It has a count of 316 cartridges per 100 pounds.



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- \* When drifters are sold with the outfit, water and

air hoses are included for connecting manifolds to the machines.

\* We can make prompt delivery of this equipment.

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Every S-D 1-2-3 "Automatic" mine car is built to meet the particular requirements of the mine using it. Heights, widths, lengths, loading and dumping conditions and a dozen other problems are involved. This is why our engineers cooperate thoroughly with you before S-D 1-2-3 "Automatics" are produced. It is this thorough engineering job that makes S-D 1-2-3 "Automatic" installations smooth running from the start.

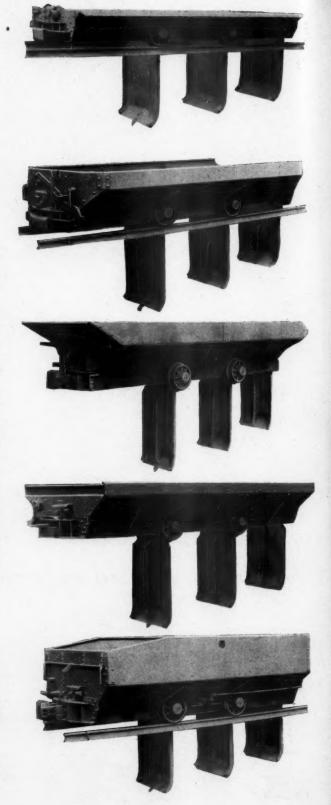
But in all S-D 1-2-3 cars, regardless of size and shape, the "Automatic" action is identical . . . the rewards of which always are the same. Increased tonnage, greater turnover of cars, fewer cars, faster, safer haulage — lower costs per ton of coal produced (savings so great they often pay for the cars in 12 to 18 months) and conservation of man power (so muchly needed now).

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Information supplied by an Industrial Publication

With the materials situation what it is, mines are solving the worn locomotive or car axle problem by rehabilitation instead of replacement. When available, welding is a very effective means of rehabilitation.

Essentially the procedure is quite simple. The wom surface is cleaned or otherwise prepared, sufficient metal is deposited to compensate for the wear and the axle is machined to its original dimensions.

Observance of certain precautions will improve results considerably. Thorough cleaning is vital. It can be done with a wire brush, by grinding, filing, or rough machining. However it is done, the surface must be completely free from oil, grease, dirt or rust before welding is started.

Minimizing distortion due to welding is obviously important. This involves several factors, all of which are controllable. For example, in starting, it is good practice to lay two overlapping longitudinal beads at points 90° apart. The spaces between can be filled in sequence.

Distortion can also be minimized by (a) keeping the welding heat low, (b) maintaining a constant welding speed, and (c) keeping beads uniform. In the case of overlapping beads it is a good idea to clean the first before laying the second.

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#### No Time to "Take Five"

W ARTIME America is learning some interesting things about its inner self, as the behavior of the multitude answers a louder call for total war. In spite of all the distracting events in the political, economic and industrial home-front theaters of the war effort, few persons doubt that each American is sincerely working to achieve the objective of winning the war as soon as possible.

The prospect of the early collapse of Italy and the quick and successful invasion of Sicily, plus reports of success on the Russian front and the heavy bombings on Germany are apparently contributing to complacency and influencing many people to view the outlook with rose-colored glasses. Meanwhile, we are hearing of failures to meet production schedules, not through strikes, but because of the optimism produced by a few preliminary victories, when the real heavy shooting in the main bout has not even started. It is true the apparent "slowdown" results in part from cancellation of war contracts for certain types of military equipment, but as the tempo of fighting increases, more speed in production on the home-front is the urgent order of the day.

Viewing the production picture of the first six months of this year, Charles E. Wilson, executive vice chairman, WPB, had this to say recently:

"The first half of 1943 is gone. In that first half we accomplished just 43 percent of the job that was laid out for us to do in the entire year. To meet our goals, we must produce 30 percent more in the second half than we produced in the first half. It won't be easy. We have reached the stratosphere of production, and the additional gains are bound to come harder and harder. For that reason, we must be swifter than we have been to make full use of such resources as become available from time to time through changes in the production program."

What this situation means to our armed forces is pointed out by Lt. General Brehon B. Somervell;

"I wish I could say that our procurement for the Army was on schedule. Actually, we have fallen behind schedule to the extent of approximately \$300,000,000 in the past three months. Only two-fifths of our program for 1943 was accomplished in the first half of the year, and three-fifths remains for completion. Monthly schedules must be increased throughout the year if our procurement plan is to be attained."

Production from the mines of the nation, as a whole, has fallen off during the last three months. Reasons for the decline in the coal industry are well known; strikes were largely responsible. In the nonferrous mines, a shortage of manpower accounted for the drop in output. The iron ore mines have been going strong, but a late opening of lake transportation has put them behind their shipping schedule.

Though the strike in the coal industry is over and production is steadily climbing, the job of making up the lost 25,250,000 tons of bituminous coal and anthracite will be difficult as the manpower shortage in this industry is felt to an increasing degree. Hope for relief in western metal mines was held on July 20, when the War Department, at the direction of the Office of War Mobilization, authorized the release from active military service of 4,500 men whose previous experience and skill qualify them for employment in mines producing copper, molybdenum and zinc. Nevertheless the mining industry, by and large, faces a herculean task in the coming months.

Production of the mines must not be influenced by optimistic newspaper headlines. Italy has not fallen, Germany and Japan are still undefeated. Therefore, every man in the industry can take a lesson from the wounded soldier in the hospital who was always saying, "I must get back, I must get back." When asked, why, he replied, "Because there is no one to do my fighting but myself."

#### On Removing Needless Red Tape

DURING the recent Coal Mine War Conference of the American Mining Congress in Cincinnati, timely action was taken in an effort to remove some of the unnecessary time-consuming red tape involved in compliance with regulations known as General Preference ("M") Orders and Limitation ("L") Orders, which regulate and restrict purchases of various key materials and equipment. These orders together with their constant amendments and directives are so numerous and complex as to be beyond the ability of any mining organization to fully comprehend and make compliance. In many instances, compliance with these "L" and "M" orders may place the operator in direct violation of the longestablished P-56 and P-73 Preference Rating Orders.

By unanimous vote of those present at the meeting a resolution was adopted, setting forth the difficulties, complexities and legal hazards entailed through this multitude of conflicting and overlapping regulations, and requesting that the Mining Division be given full authority to cut through the red tape thus created. The full text is carried on page 60 of this issue.

It is recognized that the conservation and limitation orders of the War Production Board are designed to meet a most essential need, that of apportioning scarce materials and components to the most urgent requirements of a wartime economy. It has also been recognized that the mining industry is basic to such an economy, and the mines and smelters have been kept free from the complicated procedures of CMP, with all their needs cared for and cleared by the Mining Division. The intended simplicity of procedure has become seriously endangered by the ever-growing complexity of the special orders have referred to. It should be restored so that the operators may devote more of their energy to the primary problems of production, rather than to the legal entanglements of procurement orders.



Copper miners waiting to go underground at one of the shafts of the Anaconda Copper Mining Company, Butte, Mont.

### A Look At

# Labor-Management Activities in the Butte Copper Mines

The Anaconda Copper Mining Company and its employes are tackling and helping to solve many wartime difficulties as well as taking realistic and intelligent steps for better understanding of mutual problems.

WHEN THE SUGGESTION for labor-management committees was first broached from Washington it met, generally speaking, with four reactions. They were: (1) It can't be any good because it's got something to do with labor; (2) it can't be any good because it's got something to do with management; (3) it can't be any good because the idea came out of Washington. The fourth reaction was, of course: Anything that will help win the war more quickly is worth a try, so we'll try it.

There are today more than 2,200 labor-management committees in the country, set up at the suggestion of Chairman Donald M. Nelson of the War Production Board, after an appeal to employers and employes alike by President Roosevelt for all-out cooperation to win the war.

It would be ridiculous to say that all of these 2,200-odd committees function in an atmosphere of brotherly love, because it just isn't so. A good many of them don't function at all; they were set up simply to pay lipservice to Washington. Neither labor

#### By ROBERT NEWCOMB

nor management, in these cases, would lower their guard long enough to pass a pleasant or a productive word. Management often view the labor-management structure as a dodge whereby labor would move into the front office and take charge; workmen, on the other hand, often viewed the program as a speedup proposition with labor getting the dirty end of the stick.

Most of the fault in these instances rests with the employer-employe strife which neither group would permit to be sidetracked, even in the interest of winning the war. Some of the blame rests with Washington itself for its failure properly to implement labormanagement committees, to guide and encourage them adequately during the interval of their growing pains. It is certainly true that the committees which have survived and which today are doing a genuine job had to overcome many griefs and headaches at the start.

The first labor-management commit-

tee in the non-ferrous metals industry was formed a little over a year ago at the Anaconda Copper Mining Company in Butte, Mont. The bid, as it happened, came from workmen, from miner-members of the Butte Miners' Union. Mindful of the possibilities of working out a helpful production program, a committee of miners called on the company management and broached the idea of a labor-management committee. It is probably true that management wondered just how such a program could be worked out successfully, as did many members of labor, but both agreed to give it a try. The mistakes made early in the game didn't help any, and both sides made them. In the fog of bewilderment which marked the beginnings, representatives of both sides had to find their way.

That the Butte committee has emerged today as one of the best in the country is a credit to both management and labor. It hasn't been a single-handed accomplishment of either side, but an accomplishment of both. For example, when you take off

your hat to Stan Babcock, the president of the Butte Miners' Union, you have to take your hat off also to Dan Kelly, vice president of the Anaconda company because both men have played intelligent ball and neither could have done it without the other.

Not everybody fell in with the labor-management theory. But it is to the eternal credit of the doubters that they gave the theory a chance. In the early sessions of the labor-management committee grievances were the order of the day. It had been expressly stated by the War Production Board that labor-management committees should not concern themselves with grievances, that such cases were to be entrusted to the union or company machinery already established. That put the responsibility for handling grievances squarely up to the mines' grievance committees, and they buckled down to bring grievances into the open and have them settled. They are doing a good job of it, too.

Sub-committees sprang into being, not according to plan as much as ac-cording to need. The suggestion subcommittee was the first to take form. This sub-committee meets every two weeks to consider suggestions submitted by workers. They get a lot of poor suggestions, but they get a lot of good ones, too, and awards are made from time to time to workers who have set themselves to suggesting improved methods. The poster sub-committee grew out of the need for spreading war information, not only to the miners, the craftsmen and the engineers, but to the entire community. Some of the material comes from Washington war agencies and is displayed on mine bulletin boards and other boards throughout the camp; some material is originated by local artists who donate their services to the cause. Other sub-committees were formed as the need arose.

The committee's most articulate device is "Copper Commando." To speak of this publication involves a certain amount of first-person-plural, but it can't be helped. Anyway, the committee's newspaper involves, far more than it does its neutral editors, the broadness of viewpoint and spirit of cooperation of its editorial board. These are men from CIO, from AFL and from management, and "Copper Commando," rated today the outstanding labor-management publication of the country, owes its success completely to a belief that workers and management CAN pull together.

The recommendation that the labormanagement committees of the Anaconda company publish a committee newspaper originated with the War Department. From the outset, the dangerous shortages of copper had concerned the War Department as well as the War Production Board. It was felt that a publication which might bring the war home more closely to the copper worker could, and probably would, do a needed morale-building job.

Company management shied away from choosing a man from its own ranks to launch and edit such a periodical, for labor might quickly brand the magazine a medium of company propaganda. Labor, on the other hand, could offer no editor itself. The committees turned to the War Department; they asked for a professional editor, schooled in industrial relations and in industrial journalism, completely neutral, to take over the job. The War Department recommended the writer who accepted the task.

The committee's instructions were a model of clarity and brevity: "Put out the best publication you know how. You have an equal responsibility to labor and to management. You are not to exploit one group over the other; you are to set a neutral course and stay on it."

Labor knows clearly that "Copper Commando," now starting on its second year, is not a medium to fan antimanagement dislikes. It knows that the paper will take no sock, above the belt or below it, at labor. It knows these things because labor's own representatives on the editorial board have unmistakably said so. They champion the neutrality of the publication because they know they share, with management, the responsibility for that neutrality. They regard their editorial posts highly because they have done a lot to make them as dignified, and as honest and as important as they are.

The publication is a picture tabloid newspaper, published every two weeks. Its title was chosen in a contest, and a miner won the \$25 War Bond the committees gave for the best suggestion. It is edited in a one-room office on a side street of Butte, under a swinging sign that reads: "Copper Commando—Come On In!" Because its readers indicated to us their tastes and preferences, because we believe such things ourselves, the "five-dollar words" are out. Its editorial formula is simplicity itself: Tie the worker to the war by showing him



W. J. McMahon, the company's Labor Commissioner and Secretary of the Butte Labor-Management Committee reads the correspondence at a meeting



Herbert S. Burgess recommended improvements in the design of a wrench. The Suggestion Sub-Committee awarded him a certificate of recognition which he is receiving from Foreman W. R. Russert, on the left

how important his job really is. Show him how all the complex operations of mining are dovetailed, and that he's a part of it.

It's a picture newspaper, then, and its language isn't chcosy. Its labor and management editorial board have taken the measure of its reading audience; they know what the folks like to read and how they liked it dished up, and the professional lingo is definitely out the window. Labor and management editors roll up their sleeves before every issue goes to press, and if they agree that a line should be changed, it is changed.

Maybe we can insert a little story here that will help to demonstrate the fierceness with which labor will defend the neutrality of the committee newspaper. This involves the writer, but since the big laugh was on me, perhaps you'll forgive my telling it: Before "Copper Commando" came into being there was some doubt among the various labor groups as to its motives—the big fear was that this was simply a Government speedup proposition, with labor on the losing end. At a union meeting to which I was invited to outline its editorial objectives, one labor leader started systematically to take me apart; he was determined to prove that such a project was unfriendly to labor's interests.

Three-quarters through the ordeal I happened to look out in the crowd and saw two labor members of our editorial board-boys who had not been sold on labor-management cooperation at first but who were convinced of it now. I singled them out by name, indicating that I was proud to work with them. Each in his turn rose to his feet (they explained to me afterward that they sensed I was being sweated and that they were damned if they were going to put up with it), and delivered as fine appeals for pulling together in the interest of winning the war as I have ever heard. I've often wished since that I could have had those appeals taken down by a stenographer-they made a great deal of sense. It was labor talking to labor-labor urging its own people to give whatever they could give to win

The editorial board of "Copper Commando" was elected. The CIO, the AFL and management, in each of the three locations, was asked to designate one representative. Thus at Butte, at and Great Falls-the Anaconda smelter and refinery also have labormanagement committees-the two unions each have a representative and management one-the voting power, however, is exactly even. In the case of a "hung jury" the editor has the power to break a tie. It might interest the reader to know that the editor has never yet needed to exercise that right—the knots are always untied by the board itself.

At one of our regular editorial meetings a few months ago one of the CIO men spoke up: "Look, let's do an issue showing the end uses of copper. After all, a miner is still doing the same thing in wartime that he did in peacetime, while the fellow who worked on automobiles a few years back is making tanks or planes. The miner and the smelterman don't know how important their work is. How about telling them?"

Out of that remark came a special issue devoted to the end uses of copper. We drained the War and Navy Departments of all their available facts; we pored over several thousand pictures, and when the job was finally whipped together the miner-editor who had suggested it looked it all over and pronounced it good. Our special copper issue brought to us lavish praise from many Government officials and many heads of industry, but the praise that mattered most came from the miner and the smelterman and the refiner who bothered to tell us that it had meant a lot to them.

At this writing our special issue on the labor-management committee at Butte is ready to hit the press. This is designed to tell its readers—labor and management and community—what the objectives and the accomplishments of the committee really are. For the labor-management committee realizes that the message of cooperation between these two groups must be spread wide, that not everyone is in-



The editorial staff of the newspaper consists of representatives from the labor unions and management personnel. Robert Newcomb, editor on left foreground



The Committee urges housewives to stretch rationing points and, to become familiar with the "Basic 7" foods so as to make the best nutritional use of available foods. Margaret Sammons of the "Copper Commando" interviews a typical Butte housewife, wife of an AFL blacksmith



On the job every day sharpening hundreds of detachable bits

formed and that everyone should be. The committee has already gone on the radio and plans soon to go again, with labor men and management men standing side by side before the "mike" to talk about the cooperation in which they have come to believe so thoroughly.

The Butte labor-management committee meets bi-weekly on Tuesday nights. At the start it used to meet in one of the company executive's offices, in the afternoon; the desirability of more neutral headquarters appealed to some of the workers, and evening meetings seemed better since fewer lost shifts would be involved. If anyone thought that labor wouldn't show up for meetings on its own time, he was mistaken—the attendance has grown by about 50 percent since the change was made.

The chairmanship rotates between labor and management-this is unusual but highly effective. At a meeting over which management presides, S. McGlone ("Ed" to everybody, management and labor alike) is the When labor has the chair chairman. the job is filled by Charlie Black, oldtime miner with a solid sense of humor and a progressive attitude. Some months ago the labor section of the committee started hold its own meetings on alternate weeks to develop helpful production programs. Out of one of those sessions came the absenteeism program which labor proposed and with which management concurred, and when the labor-management committee idea gets itself written into history the Butte absenteeism program will have earned a large place.

Reports from the secretary are read first. The secretary is the company's labor commissioner, W. J. McMahon. Bill is a strong advocate of the labor-

management committee, and he pulls hard for it. Sub-committee reports follow—absenteeism, rationing, transportation, publicity, "Copper Commando" and other activities. Old business is disposed of, and then new; the suggestion sub-committee report comes at the end of each meeting.

There are fireworks, of course—meetings aren't very interesting unless there are. It is part of the unwritten code that a delegate can speak

his mind, and most of them do. A year ago the charged atmosphere developed chiefly a lot of bickering; today both sides are aware that almost any problem can be tackled and licked without fighting.

The Labor-Management Committee publishes, as we have said, its own newspaper; the newspaper is successful because the intent of the committee itself is honest. Its representatives have gone on the radio; imagine, a few years ago, a CIO miner, an AFL electrician, and a management man, all working for the same company, standing before a microphone to ex-toll the merits of labor-management The Labor-Management harmony! Committee interests itself in community causes-matters which affect the welfare of the community itself. When transportation facilities bog down, the transportation sub-committee goes into action and gets the matter smoothed out. In a community not yet thoroughly war-minded, the poster sub-committee distributes posters and other literature aimed at stepping up war-consciousness. Its rationing sub-committee leagued up with local patriots to preach better nutrition, and when a "Meat for Copper Production" drive was launched to increase meat allotments for men working in a vital war industry, the chairman of the local sub-committee was chosen to head the communitywide program.

The safety sub-committee not only urges the miner to be careful, but it

At each of the company's nine producing mines is a billboard showing progress of copper production for war. Each car represents a mine—the one which reaches the end first drops its load on the heads of Hitler, Hirohito and defunct Mussolini





At the smelter in Anaconda, which is 28 miles from Butte, copper for the war program flows in a steady stream

passes its safety messages along to the man who crosses the street and fails to look both ways. Members of the Labor-Management Committee sit on civic boards-two miners, for example, are on the draft board; another is on the local War Manpower Commission, with a management man -also a member of the Labor-Management Committee-serving him. Residents of the community itself, many of whom have been skeptical for years of either labor or management or both, are beginning to discern a pattern in all of this, and to like the shape of it. Cooperation, after all, makes sense.

Will the principle of Labor-Management Committees grow, and will it endure? That, as an Anaconda official remarked on a Labor-Management Committee radio program not long ago, depends upon the good intent of labor and management alike. If labor and management can pull together, he said, in a time of war, then there isn't any good reason why they shouldn't pull together in a time of peace.

In the meantime, the labor-management operation at Butte, Mont., seems to be attracting attention. It has come a long, long way in a short, short time.

### What are the Accomplishments of the Committee in Butte?

War Production Drive Division, in enumerating the jobs that labor-management committees can do, listed 10 points. Here are the 10 points as given by the labor-management committee headquarters in Washington and with them the contributions toward labor-management cooperation made by the Butte committee.

1. The man on the job, who knows his job best, is enabled through committee action to turn in his suggestions for improving production, conserving materials, protecting tools and equipment.

The suggestion sub-committee, the first one established by the Butte labor-management committee, at every meeting receives suggestions from workers to improve production, conserve materials, protect tools and equipment and has already adopted a number of suggestions made by workers.

Production problems are being solved jointly, bottlenecks broken and every machine, tool and man utilized as efficiently as possible.

With several sub-committees of the Butte labor-management committee functioning to break bottlenecks, the

committee is tackling production problems as they arise and licking them.

3. Continuous programs on conservation and salvage are under way.

As conservation and salvage programs are launched, the Butte labor-management committee assigns the responsibility of cooperating with community programs to a sub-committee, and in this way the entire working force of the community is put solidly behind these drives.

4. Tools and equipment are receiving proper care.

In such a vital industry as the production of copper, conservation of tools and equipment is vitally important. Through the mines committees and the labor-management committee every effort is made to keep each piece of production at its maximum efficiency.

5. Special war activities, such as War Bond drives and war fund campaigns, are going over the top.

Through its official labor-management newspaper, the labor-management committee at Butte stimulates the sale of War Bonds and other war causes. It is significant to note that Montana has the record of the greatest per capita War Bond purchases, to some extent due to the constant appeals made by the labor-management committee.

6. The problems of wartime living and transportation and health which impair regular attendance on the job are being licked.

These problems have long since been tackled and are being licked by the Butte labor-management committee. Housing shortages are not serious in this particular area, but problems relating to the transportation and health are handled through subcommittees; the transportation subcommittee was formed to meet transportation difficulties as they arise, while the safety activities of the labormanagement committee are devoted to health education for workers.

7. Diet and health programs are being mapped.

Through its official newspaper, "Copper Commando," the Butte labormanagement committee has tackled the topic of diet and health. In its regular department, "Platter Chatter," it directs its efforts at showing workers in the community the soundness of extending their rationing points to their full value; by giving sound recipes of the wives of workers themselves.

8. Safety measures are being promoted all the time.

The need for safety in a vital war industry was never greater; the labor-management committee, through the use of bulletins and posters and other safety material, is constantly impressing upon the workers the need for working safely. As a result, the accident rate in the Butte community is being lowered steadily.



J. J. Harrington, representing the workers, reports on the meat for copper production drive

9. Transportation problems are being solved and systematic methods of car pooling inaugurated.

As indicated in point six, the transportation sub-committee of the Butte labor-management committee tackles transportation problems as they arise and licks them.

10. Every worker is becoming aware of the supreme importance of his war job.

Through the activities of its various sub-committees, the labor-management committee is driving home constantly to the worker the importance of the work he is doing in the war program. The worker is being related through these many activities to the war job he has to do and being informed of his importance in the whole war pattern.

In these ways the Butte labor-management committee is fulfilling its obligations of its pledge made to the war production drive. In addition to this, the committee is making other substantial contributions: The subject of absenteeism, which is a paralyzing factor in war production, is being solved through the cooperation of labor and management. The labor section of the labor-management committee some weeks ago recommended a program for interviewing absentees. and today an experiment at two of the mines has been broadened to include all mines in the Butte area. Representatives of both labor and management, noting with pleasure the progress made toward the reduction of absenteeism, confidently expect to reduce wilful or needless absenteeism to an absolute minimum.

Butte miners, who were obliged as the result of a Government order to give up the Terre Haute mining boot, made a request through the labormanagement committee for this particular boot, which is regarded by the miners as more satisfactory than any other. The labor-management committee tackled the problem and obtained a grant from the Government whereby the Terre Haute boot was

again made available to the Butte miner.

Recognition for copper workers of military age, frozen in their jobs, was reported as being necessary to the labor-management committee. young men, working in the copper industry and unable to go into mili-tary service, were found to be re-garded as "slackers" when actually they were and are doing a fine production job in time of war. The labormanagement committee took this matter up with Washington authorities and within 30 days a solution was reached whereby necessary copper workers of military age are to be given full recognition for their essential efforts. Thus an important contribution to the war program is soon to be recognized.

Miners asked that accurate, inexpensive timepieces be made available in spite of the freeze. The labormanagement committee took this sub-

ject up and it is shortly expected that these timepieces will be available.

As a result of cooperative efforts between labor and management, the rationing sub-committee of the labor-management committee took up the problem of more meat for copper workers in an area where meat supplies are considered wholly inadequate. The entire community rallied to the cause as a result of which the "Meat for Copper Production Committee" was formed and a concerted drive made to educate Washington to the need for greater meat allowances for copper workers.

The labor-management committee,

recognizing the need for emphasizlabor-management cooperation throughout the community and state, as well as through the industry, has issued a special number of its "Cop-per Commando" with the idea of familiarizing not only workers but also residents of communities with the aims and accomplishments of the labormanagement committee. In this issue, regarded by labor and management and Government agencies alike as a distinct accomplishment in the field of labor-management relations, tributes to the local labor-management committee and the objectives of labormanagement cooperation are made by the heads of CIO and AFL, by the resident head of the Anaconda Copper Mining Company, by the president of the Butte Miners' Union, by all the officers of the crafts unions, by the governor and the chief justice of Montana, and the mayor of Butte.\*

These men appreciate the importance of their job in getting these copper anodes from Great Falls, Mont., on their way to the warfronts as soon as possible



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<sup>\*</sup>Through the courtesy of the Victory Labor-Management Production Committees of the Anaconda Copper Mining Company and its union representatives, copies of this issue have been made available to interested readers of Mining Concases Journal. Address your requests to "Copper Commando," 112 Hamilton Street, Butte, Mont.

### Preventive Maintenance On The Iron Range

BUTLER BROTHERS, who now operate 13 open pit mines and two underground properties and rank first among the independent firms in Minnesota, branched out from heavy construction in 1902 and undertook their first stripping contract on the Iron Range. By 1905, the firm was stripping and mining on contract on such an extensive scale that establishment of a repair shop became necessary. That was when Gust Weegum, big, shy and newly arrived from Norway, agreed in his hesitant English, to assume responsibility for keeping the equipment in working condition.

By 1913, when Butler Brothers acquired a number of ore leases from the Great Northern Iron Ore Properties, the repair shop was beginning to take on the characteristics of a railway roundhouse. As the firm dug deeper into the red earth of northern Minnesota, the loading and hauling facilities were expanded until they were operating 40 steam locomotives, 300 20-yard ore cars and a number of cumbersome rail-mounted steam shovels.

Standard gauge railway tracks supplanted the original narrow gauge tracks, as electric- and diesel-powered equipment gradually replaced the steam powered machines, and finally, after 1937, as the mining firms completely revamped their mining methods, replacing almost all railway equipment with self-propelled shovels and trucks. The repair shop became less a roundhouse and more a modern shop equipped to rebuild power shovels and overhaul diesel engines, trucks and tractors.

Today, Butler Brothers' shop at Cooley is the most modern and completely equipped on the Range. Housed in a two-story structure of glazed tile, the main repair shop space measures 224 by 100 ft. with adjacent buildings housing a tire repair shop, electrical repair shop, blacksmith shop, warehouse and office space.

Gust Weegum, no longer wears the gloves and apron of his trade, but directs from a glass-covered desk the activities of some 190 mechanics who work 24 hours a day to keep the mining equipment in production.

It is a far cry from the first small shop building where he worked some 40 years ago to the modern repair Operation and management of the large modern repair shop of Butler Bros. involves many responsibilities and duties for the master mechanic. Equipment must always be ready for the uninterrupted production of iron ore from the company's fifteen mines on the Mesabi Range

By A. J. WISELEY

shop where all repair work on equipment operated in 15 mines is now done. A casual investigation of the shop discovers four turn lathes ranging from 18 to 42 in. swings; three drill presses, one a 20-in., the second a 28-in., and the third a 6-ft. radial press; two shapers; one 42 by 42-in. planer with a 10-ft. table; complete metal spraying outfit and innumerable arc welders and oxygen-acetylene cutting outfits. This equipment all is spotted in the main shop area.

Off to one side is a recent addition, a tire repair shop. Here a Vita-cap process kettle for repairing tire cuts and bruises has been installed. The firm operates a fleet of 15-ton trucks with 14:00 x 24 tires and the kettle is large enough to accommodate two of these big tires at once.

At the rear of the main shop is a blacksmith shop and forge equipped with several furnaces, a large air hammer, shearing machine capable of cutting through any steel, bolt maker and innumerable welding units. The electrical shop, similarly well-equipped and stocked, is housed in a separate frame building adjoining the main shop.

When the shop was visited at the opening of the 1943 mining season, work was in full swing on almost all operations. Near the front of the building, mechanics were overhauling several large diesel engines from the 15-ton Euclid trucks, employing a turning jig which Weegum's mechanics had themselves developed. The diesel engines were lifted by crane to position in the jig, locked in, and then



A Marion 4-cu.-yd. electric shovel loading a 15-ton Euclid truck in one of the open pit mines of the Butler Bros., near Nashwauk, Minn.



Main repair shop of Butler Bros. at Cooley, Minn.

easily turned to any degree enabling a mechanic working in one position to completely go over the engine.

completely go over the engine.

Beyond this space other workers were turning out shafts and bearings on turn lathes. Next in line were three Euclid trucks which had been brought in for overhauls. One had rolled down an embankment and had been completely rebuilt from frame Beyond the trucks four or five mechanics were installing new treads on a Caterpillar D8 tractor and a few feet further on, a Bucyrus-Armstrong drilling rig was in for an overhaul. Last in the lineup was a Northwest 11/2-cu. yd. shovel which, dismantled, was awaiting the arrival of parts before workmen could set about reconditioning it. At the rear of the shop four or five welders were busy with arc welding outfits.

A metal spraying unit was in use building up shafts and slip rings for motors while in another section of the shop, sprockets for washing plants were being machined. As it has become increasingly difficult to obtain necessary repair parts, Weegum has turned to reconditioning old parts such as sprockets and rollers for "cat" type equipment. Castings are purchased in the rough, finished at the shop and seated with a key seating machine.

In the blacksmith shop, one of the biggest jobs is rebuilding the dipper teeth and reshaping drill points for the power shovel buckets. The manganese steel dipper teeth are hardfaced with Lincoln welding units and electrodes with each set of teeth sometimes rebuilt as often as six times. Hardfacing and machining in the blacksmith shop extends the wearing life by 25 to 30 percent.

The diesel stand which turns over the motors is only one of several which have been developed in the

shop. Another is a test stand for fuel pumps set up to test reconditioned pumps under actual operational conditions from idling to full speeds. Using this test stand, none but perfect fuel pumps are ever installed on motors.

Many pieces of mining equipment used in the Butler properties are actually manufactured right in this shop. Although all the mines on the Mesabi Range operated by the firm are open pit operations, their two Cuyuna properties are underground mines where one-yard hoe-type scrapers are operated by double drum tuggers in slusher operations. All scrapers for underground work are built in the blacksmith shop at Cooley.

Whenever there is a tough repair job or something new to build up, the engineers usually talk it over and then conclude, "Weegum can do it." And Weegum does it. While locomotives still were in general use, he was credited with the ability to build a steam train engine from scratch. Since the newer electric, diesel and gas-powered equipment has come into its own, Weegum has kept pace and the men on the Range are even more confident of his ability.

He is, however, perhaps more proud of a steel cage house which he designed and built recently in the shop than of almost any other assignment he has had. Timber in 12- to 14-ft. lengths was being used in the underground mines. Previously it was necessary to unload the timber, stick for stick, from the truck, prop it up endwise in the cage, and then repeat the process in unloading when the proper underground level was reached.

The cage house he designed is about 16 ft. high and has a small sheave in the top of the cage. The timber truck backs up to the cage with its load of timber tied together in one unit.

Cables from the sheaves are attached at two points to the entire load. A 7½ hp. tugger motor raises the load from the truck into the cage and as the timber slides in, the bottom logs fit into place in a pocket on the floor. When the desired mine level is reached, the entire load is released from the cage in one unit by a reversal of this procedure.

Other standard tasks include such work as the manufacture of stackers for stockpiling concentrate. Each of these steel units is 100 ft. long and carries 24 to 30-in. conveyor belts.

#### Thorough Lubrication Means Good Equipment

Although confronted with such a complex variety of equipment as 62 15-ton diesel-powered Euclid trucks, 2 steam locomotives, 12 Caterpillar D8 tractors, 4 motor patrols, scrapers and loaders, 16 shovels ranging from 4½-yd. Bucyrus Erie and Marion electric shovels to Northwest 14-yd. gas shovels, steam and gas cranes, 9 gas and electric drills, and plants ranging from heavy density, media separation plants with capacities of 600 tons an hour to a fines plant for treating tailings with a capacity of 200 tons an hour, Weegum and the engineers have yet found it possible to design a workable, successful preventive maintenance program. A comprehensive survey of maintenance in each of the categories of drilling, loading, hauling, conveying and concentrating would involve a voluminous work. Some idea of the thoroughness of this maintenance program, however, may be obtained by briefly glancing at some of the high spots.

Essential to the successful operation of the maintenance program are seven service garages located right in the mine areas. These garages are equipped with grease racks and high pressure lubricating equipment and service trucks and tractors at least once during every 24-hour period. Lubrication is complete and on the trucks includes body and frame.

The diesel motors of the trucks are taken into the shop for a complete overhaul after an average operation of 5,000 hours. Since installation of the tire repair shop, it has been possible to cooperate 100 per cent with the rubber conservation program. Truck tires are checked regularly and as soon as any cuts or bruises develop, the tire is removed and sent to the shop for vulcanizing or patching.

The tractors are greased once every 24 hours and the shovels are lubricated twice a shift. As a general practice shovels are completely overhauled at intervals of 18 months and churn drills once every two years. Once each week, on Saturdays, shovel foremen and electricians check loading equipment and conveyor systems for necessary repairs and, with all equipment idle on Sundays, the needed work is done on that one off 24 hours in the entire week. Field outfits equipped for minor repairs and welding and cutting are ready for field operations on a moment's notice.

Thousands of feet of electrical cable extend from portable transformers into the pits where the big 4 and 4½-yd. shovels dig the iron ore. When this cable is bruised a short develops, blowing out the fuses. It sometimes is difficult to locate damaged sections of cable, so Weegum has developed an electrical cable testing outfit which ordinarily will immediately show the bruised spot. Occasionally, however, the trouble is not immediately apparent, and then it becomes necessary to turn on the full current and blow the damaged section of the cable wide open.

Operating so many units of equipment has caused Butler Brothers to pay particular attention to wire rope and rope performance. In operations where a flexible rope is not necessary or where wear and stress on the cable will be negligible it is desirable to use Where the ordinary type wire rope. the cable is to be subjected to continuous and strenuous usage, many mining firms, including Butler Brothers, have found it economical to use a preformed wire rope. Butler Brothers employ this type of rope in underground slusher operations and in their open pit mines.

The biggest present-day job of this country's iron ore miners is, of course, the production of ore, but ranking second is the task of conserving equipment and steel so that all the ore produced may go into vital war production. In the preventive maintenance program of Cooley many tons of steel alone are saved in the conservation of wire rope. Hoisting cables, for example, are turned end for end to more



Gust Weegum, master mechanic, at Cooley, Minn.

equally distribute the wear over the surface of the rope. On the large shovels, at least three times during the expected life of the cable, from three to four feet is cut from the rope above the point of attachment.

Sheaves as large as practicable and mounted in perfect alignment reduce abrasion and wear on the cable. Mechanical limitations, however, sometimes make the use of small sheaves necessary and here it is especially essential to use a flexible wire rope.

Beyond these life extending measures, the servicemen have been instructed to examine and lubricate all preformed wire rope at least once every 24 hours. A standard, good quality grease is applied to the cables with stiff brushes renewing the original lubrication which was in the rope when manufactured.

The war and increased production have not only brought new maintenance problems and methods to Weegum, but for the first time in his life he is employing women. So far only a half dozen women have been placed on the shop payroll, but Weegum, instead of grumbling, sees no reason why the number should not be augmented. They are doing a good job in the parts department, he comments.

There are now six Weegums occupying key positions in the shop, two brothers who joined Gust in 1908, and more recently, a son of each of the brothers, two who work as welders and one who is a machinist. The Weegums stand head and shoulders above all others in the shop. Of the six, all but one who falls only a few inches short stand well over six feet and one of the second generation Weegums is the tallest man on the Range standing a good 6 ft. 7 in.

Gust Weegum has faithfully and well served Butler Brothers in his capacity as master mechanic for 40 years. It was only fitting that the mining firm in opening their latest Mesabi open pit mine this season should name it for him, the Weegum Mine.



Dismantled shovel in one corner of the Cooley repair shop awaiting parts



Opening meeting. . . . All ears want to hear how more manpower can be made available for the coal mines

# Coal Mine War Conference A Great Success

Two-day meeting of the American Mining Congress at Netherland-Plaza in Cincinnati attracts large number of mine operators and manufacturers for discussion of leading problems bearing upon greater coal production

PLANS for this conference were orginally set for May 17-18, but the stress of attention to wage negotiations by coal operators during April and May necessitated a postponement to July 19-20.

Attendance was considerably greater than expected, totaling well above 900 key men of the industry. The theme of greater coal production for the winning of the war was evident at all meetings. On July 20 the conference closed with an informal dinner which featured a nationwide radio broadcast by Carl E. Newton, Deputy Coal Mines Administrator. He discussed the present situation in the coal industry, and pointed out that the sooner permanent peace can be established between the industry and labor,

the sooner will the Government be able to return the mines to their owners. Also, that the Government does not intend to give operators of closed mines the taxpayers' money to risk in their business instead of them risking their own funds.

Beginning at the general session on Monday, Julian D. Conover, Secretary, the American Mining Congress, stressed the objective of the meeting; to study ways and means of obtaining maximum production of coal, and to further the joint efforts of manufacturers, Government officials and men operating the mines to make up the tonnage which the industry has lost in recent months.

Geo. F. Campbell, vice president, Old Ben Coal Corporation, and program committee chairman, welcomed the large attendance at the opening meeting and thanked the program committee for the work hey had done to make a successful meeting. Commenting on the wage negotiations, Mr. Campbell said, "I do want to give one word, if you please, of admonition. I sincerely hope that any animosities that may have been engendered in the wage negotiations, either in the past or in the future will not linger in any one's mind. I am reminded of a story. A farmer and his wife were sitting talking one night and the wife said to the farmer, 'John, do you know that tomorrow is our wedding anniversary? Let's kill a pig and celebrate.'

"John replied, 'Why murder a pig

for something that happened 25 years ago?""

Harry M. Moses, president, H. C. Frick Coke Company and chairman of the Coal Division of the American Mining Congress, was introduced by Mr. Campbell and he addressed the gathering briefly. Touching upon the recent difficulties in the industry, he said, "I have every sympathy with the various beliefs of the coal operators in this country concerning how the thing should be worked out. I have had an opportunity to be intimately associated with it for the last six months, and I know that great effort has been extended in trying to work it out, and I have confidence that this industry will solve its problems and will, in a very short time, come back to the orderly industry that we have always been, even in bad times."

John W. Haddock, chairman of the Manufacturers Division of the American Mining Congress, made a brief report on the activities of the Manufacturers Division during the last year. He said, "The past year has been very difficult for manufactur-ers, many demands have been made upon us, we have had many problems, similar to those that many of you gentlemen have faced with respect to materials, manpower and supervision. All of us have been very fortunate in that the needs of the mining industry have been recognized in Washington, and we have been fortunate that the Government was able to obtain the services of a number of men who were thoroughly versed in the needs of the industry and also sympathetic too, and understanding the needs of manufacturers.

"As a bystander and onlooker I particularly admire the job that has been done in behalf of the coal mining industry during the last few months. I think it has gone a long way, a very



Charles M. Hay, General Counsel, War Manpower Commission. . . . "We can help out in the training of men so as to bring a larger supply of skilled men into industry."

30,000,-

long way to swing the scales in favor of the business man as a responsible member of the community as opposed to the bureaucrats, the economists and other people all of whom would like to run not only their own affairs but ours also."

The difficult manpower problem was discussed by Charles M. Hay. He is a well known attorney from St. Louis, and has recently taken over his new assignment as general counsel for the War Manpower Commission in Washington. Discussing the manpower needs of all industry, he said. "At the present time this is the estimate of the number of men needed in the various activities, military and otherwise, by July 1944. It is estimated that there will be needed by that time in the military service 11,300,000; in munitions industries 11,600,000; in other

non-agricultural industries

000; in agriculture 12,000,000; making a total of 64,900,000. It is estimated that at the present time there are in the military services of all kinds 9,300,000, and that there are 10,000,000 in the munitions industries. The estimated need for the military services and the munition industries between now and July, 1944, in addition to what is now in the military and munitions industries is 3,600,000. Where are they coming from? Where are we going to get 2,000,000 more for the Army and 1,300,000 more for the munitions industry? Well, you say, let's get them from the unemployed. There are no unemployed in this country now. Eight million unemployed have been absorbed into these activities since this war started, a magnificent accomplishment.

"The Government can do some things with respect to the manpower



Mine operators and manufacturers . . . have an opportunity to swap ideas

problem, it already has lengthened the workweek, we can help out in the training of men so as to bring a larger supply of skilled men into industry, some difficulties with respect to other industries perhaps will need some special treatment. We are exercising these controls measurably, at least in the allocation of men and the holding of men in these positions, but Government can't do it all."

Discussion of the manpower problem in the various coal regions followed Mr. Hay's talk. First to speak on the subject was Walter F. Schulten, assistant to president, Pittsburgh Coal Company. He covered the labor situation in the State of Pennsylvania, and pointed out how the State laws limit employment to male persons who hold a miner's certificate of competency, also that the so-called apprentice cannot work inside a mine unless he has a sponsor. He said, "With a view to alleviating this situation the State Legislature did reduce the previous training from two years to one year. We are hopeful that will be of benefit. . . . A representative company in Pennsylvania in January, 1942, had operating personnel in its mines amounting to 8,700. From that period there has been a gradual decline with the result that today the figure has been reduced to 6,800. During the first five months of this year there has been a net loss of 450 men. There has been a tremendous labor turnover. . . . The only manner in which production may be increased, the present shortages overcome, is to make available additional manpower and it is hoped that the War Manpower Commission and Mr. Hay, with his new broom, will undertake a plan of action before it is too late."

The manpower situation in the State of West Virginia was presented in a paper written by R. E. Salvati, vice president, Island Creek Coal Company. Mr. Salvati was unable to attend the meeting and his paper was read by W. S. McQuail of the Turkey Gap Coal & Coke Company, West Virginia. It stressed the high rate of absenteeism in the coal mines, and stated that according to the Department of Mines in West Virginia, 10 percent of the coal mine labor supply had been lost on the average in all classifications. The Pocahontas field showed perhaps the largest loss, of 17.6 percent in 1942. Mr. Salvati went on to say, "The employment of women at outside jobs has been demonstrated as a distinct possibility, although it has been blocked by the United Mine Workers with very plain threats of strikes unless slate pickers were confined to males. This union insists that its membership at the mines be confined to men, although it takes in women on the farms, silk mills, etc., in its District 50 organizations."

The manpower situation in the Illinois coal mining region was discussed



Coal mine operators . . . have plenty of problems

by D. D. Wilcox, general manager, the Superior Coal Company.

What is recognized as perhaps the most serious problem in the western coal mining regions is the shortage of manpower to supply the demands of the growing industrial northwest. Eugene McAuliffe, president, Union Pacific Coal Company, pointed out that a coal famine will occur this winter in the western states unless the manpower situation is improved in the very near future. He said, "After listening to Mr. Hay's very eloquent address I was almost prepared to adopt him as the Great White Hope of the coal mining industry. I really think he is going to do something for us. Heretofore, we have had nothing but generalities, platitudes, promises, all the time our manpower has been going down numerically, unit production has been decreasing and absenteeism has been multiplying. This, during the period of minimum seasonal demands. During this period in the west the railroads have given a full 100 percent service to the coal mines. No intelligent railroad operating official will guarantee the continuation of that in the face of the heavy load that obtains on the railroads today. When winter comes motor power is crippled, cars become scarce. We have a situation that must be reckoned with."

A highlight of the Monday lunch-eon was a series of brief talks by Senator James J. Davis of Pennsylvania, Senator Albert W. Hawkes of New Jersey and Senator Chapman Revercomb of West Virginia. Harry M. Moses was chairman and he introduced next the scheduled speaker, Second Lieutenant Howard Cook of the U. S. Army Air Force, who made a very dramatic talk describing his experiences in having to bail out from his plane during an air battle with German fighters over Bizerte in North Africa. In closing, Lieutenant Cook said, "I would like to say something that has run through my mind many times. You never can do too much for those fellows over there, because they are doing their damnest for youfighting their hearts out, going through hell. Some time when you are enjoying yourself in the theater or cocktail lounge, having a good time, think of those boys and ask yourself just one question: Am I doing my best for the boys over there?"

Three meetings took place following the Monday luncheon, a session devoted to strip mining, one to deep



Manufacturers' priority meeting . . . answers to many questions

mining, and one by the Manufacturers Division of the American Mining Congress.

#### Deep Mines Operators Review Their Possibilities

At the deep mining session W. E. E. Koepler, secretary, Pocahontas Operators Association, Bluefield, W. Va., was chairman. "Reducing Delays in Machine Operation" was the title of a paper prepared by A. K. Hert, general manager, Snow Hill Coal Corporation, Terre Haute, Ind., and this was read by Fred Bieler, superintendent of the Snow Hill Coal Corporation. C. C. Ballard discussed the paper prepared by Mr. Hert.

John M. Johnston, vice president, Bell & Zoller Coal & Mining Company, Zeigler, Ill., discussed the many operating problems which the present emergency has introduced in the organization for greater coal production. He said in part: "We are all interested in high tonnage, but other operating items must be given their full share of consideration if the production program is to be successful. Production thinking must be coordinated with costs and safety. It is not possible to continue for any great length of time without giving thought to the combination of these three items, and the company that stresses tonnage and forgets cost and safety will soon have a property for sale."

Roland C. Luther, vice president of the Peerless Coal & Coke Company, discussed Mr. Johnston's paper and pointed out his experiences with the manpower problem and the remedies his company had introduced in seeking to reduce absenteeism, as well as increased production. James Reilly discussed the problem of organization for greater production based on the experiences of his company, the Hanna Coal Co. He described the experiences in the transition from hand loading to mechanical loading within the last two years at the Piney Forks Mine. Mr. Reilly's closing comment was "I believe we are going to run into a lot of difficulties, and it is going to take a lot of spirit to overcome them. A lot of us are going to throw up our hands and look for something a little easier. I think we need to rededicate ourselves to our jobs, with the responsibility we hold before the nation, and strive to build and instill the proper spirit into whatever phase of this mining industry with which we might be connected."

Touching upon the problem of economies in mine operation and other phases of production, C. C. Hagenbuch presented a paper entitled "Labor Economies in Track Construction." He presented figures showing a comparison between skilled and unskilled labor engaged in track work. Frank G. Smith, general superintendent, the



Strip mining . . . activity increasing

Sunday Creek Coal Co., Nelsonville, Ohio, presented another phase of the practice of conserving labor in his paper entitled "Saving Labor by Preventing Roof Falls." His paper dwelt upon the method of sealing mine roofs through painting the roof with some preparation which protects it from the atmosphere. He said, "In some cases, asphalt and water emulsion have been used, while in others various paint preparations using volatile solvents were applied. Obviously, such preparations have no structural strength, but can be made to provide an effective seal. The primary advantages lie in low cost of application, ease of application (more or less conventional sprays are used), and the fact that the preparation need not contain water. This last is a distinct advantage where shales deteriorate rapidly, where even small amounts of water are present."

At this session, D. F. Welch, mining engineer of the Windsor Power House Coal Co., Pittsburgh and Wheeling, discussed some features of a guniting process used in their properties. Subjects discussed at the Monday afternoon strip mining session included Strip Mine Haulage, Repair and Maintenance in Wartime, and Electrical Controls on Late Model Shovels. R. K. Beacham, general superintendent of Ayrshire Patoka Collieries Corp., Indiana, was chairman. The pros and cons of truck or rail haulage were discussed in a paper presented by C. W. Woosley, general superintendent, Pyramid Coal Corp., Pinckneyville, Ill. C. B. Baton of the Greensburg-Connellsville Coal Co., Pittsburgh, discussed the experiences his company had had in the use of track and truck haulage.

The problem of dealing with repair and maintenance in wartime was discussed by W. B. Pratt, treasurer, Dakota Collieries Co., Minneapolis, Minn. Parts of Mr. Pratt's address were colored with humor. He described how equipment for the company's coal min-

ing plant had been made from salvaged threshing machines, bought from farmers.

An explanation of the leading features of Amplidyne, Rototrol and Double Ward Leonard control devices for electric shovels and draglines, was made by Lester E. Briscoe, electrical engineer, Ayrshire Patoka Collieries Corp., Indiana.

### Manufacturers Division Reviewed Splendid Progress

The Manufacturers Division of the American Mining Congress also met on Monday afternoon and reviewed the activities of the past year. John W. Haddock, chairman, reported that membership had increased from 48 companies to 115. Secretary Conover outlined in some detail the work of the Mining Congress in building for a stronger and more progressive mining industry, and a most constructive discussion ensued. This meeting afforded the opportunity to members of the Division to express their appreciation for the work done by Mr. Haddock, who recently left the mining machinery industry to become presi-dent of the Farrel-Birmingham Co. of Ansonia, Conn. George E. Stringfellow, vice president, Thos. A. Edison, Inc., will serve as chairman of the Manufacturers Division during 1943.

The meeting on Tuesday morning was headed by Evan Evans, vice president, Lehigh Navigation Coal Co. Lansford, Pa. Mr. Evans introduced E. R. Keeler, president, Franklin County Coal Corp., Chicago, Ill., who presented a paper discussing the subject of "Quality Coal for War and Post-War Markets." Mr. Keeler pointed out that members of the industry should pay particular attention to the lessons of the last war so as to avoid making the same mistakes when this present war comes to an end.

The all important subject of public relations was discussed by Edward



Roster of members of the Manufacturers Division . . . from 48 in 1942 to 115 in 1943

H. Walker, director of public relations, Anthracite Industries, Inc., New York, who described how his organization was trying to create a better public understanding of coal and its uses. Mr. Walker prefaced his address by saying that "In my opinion your public relations policies, and I mean yours individually, is going to be the most important factor in your success or failure in the future—public relations reaches down into labor; it reaches into every phase of your business even up to the time that coal rolls over a scale in a retailer's yard."

The wartime problem of conservation of equipment and supplies was discussed by Joseph Pursglove, Jr., president, Cornell Coke Co., Morgantown, W. Va. He described the various methods employed by his company in salvaging material, reclaiming worn parts and rebuilding equipment.

A special meeting was arranged on Tuesday morning to give coal company purchasing agents and their staffs the opportunity to discuss their own particular problems with Director Arthur S. Knoizen of the WPB Mining Divi-



Manufacturers Division . . . dedicated to helping the entire mining industry



GEORGE E. STRINGFELLOW Chairman Manufacturers Division, 1943-1944

Speakers at the Tuesday luncheon meeting, presided over by George E. Stringfellow, were T. J. Thomas, Director of Production for Coal Mine Operations, Department of the Interior, and Mr. Knoizen. An address on the general work of the War Production Board in assisting the mines to maintain full production was to have been made by Howard I. Young, Director of WPB's Mineral Resources



Tuesday's luncheon . . . realism from Washington by T. J. Thomas and A. S. Knoizen

Coordinating Division, but he was unable to attend due to the pressure of work in Washington.

T. J. Thomas summarized tasks of the industry. He said in part:

"Production is the Number 1 task of the coal industry during the remainder of 1943. This production must be secured in spite of the major handicaps of manpower and equipment shortages which have limited mine output since the start of the year.

"The coal has to be produced by the men on the job and by those who can be recruited in the coming months. The industry is short of thousands of men. While production requirements leaped ahead, coal mining alone suffered a net loss of some 60,000 men last year. These losses have been continuing although we can hope that their rate has been reduced. Further substantial losses of experienced men could readily bring the nation to the point where it would be physically impossible to produce the coal the nation must have.

"The coal has to be produced with present equipment and with what additional equipment can be made available. Deficiencies in new equipment and even in repair parts have resulted in definite capacity limitations. Mines have lost output because they could not get repair parts when they were needed. Procedures are being worked out in an endeavor to improve the

equipment situation and minimize such losses.

"Through July 3, our bituminous coal and anthracite mines have produced this year approximately 320,-445,000 tons of coal. This is millions of tons under what should have been produced in this period on the basis of the 1943 production goals.

"The facts speak for themselves. They spell out in bold letters the need for the maximum work, the maximum ingenuity, the maximum of patriotic effort on the part of everyone engaged in coal mining during the remainder of the year.

"We cannot afford to lose a moment's production unnecessarily from this time on. Every ton of coal mined is vital to the nation in forging the military strength required to defeat our enemies.

"There is only one way in which these handicaps can be overcome. That way is the united effort of every individual engaged in coal production.

"It will require every miner to do his daily task with the realization that his work is a vital part of the whole coal program; that every bit of additional coal he can produce will go to fill a definite need.

"It will mean that every individual in the industry be on the job every working day, unless it is physically impossible to do so.

"It will mean that present equip-

ment must be used to the utmost; that equipment must be properly maintained and that critical and scarce materials must be conserved by management and workers to get the most use from them.

"The coal industry has had hard jobs tossed in its lap in the past and it has risen to the need and done them well. Its men are hardworking, resourceful and patriotic. They can and they must lick the production job ahead of them this year."

Discussion of materials procurement was made by Mr. Knoizen. He asked members of the industry to conserve and use their inventories for the next two or three quarters wherever it is economically possible to do so. He said, "In concurrence with the Department of Interior's Production Division, our mining division must try to meet delivery schedules to assist Mr. Thomas in the production of coal in the different critical areas as they may develop from time to time. Hence you may frequently be faced with a loss of a piece of equipment because it is urgently needed in another part of the country. Please do not criticize the manufacturers for failing to make promised deliveries, as they are working on a definite schedule and all of their shipments are directed from Washington."

Commenting upon the coal situation in Great Britain, he said, "I have

heard much comment and some criticism due to the fact we are shipping a large quantity of machinery to Great Britain for the production of coal. I want to say that this, in our opinion, is very necessary and absolutely essential. First, because England at the present time has a shortage of approximately 20,000,000 tons of coal, and I know from first hand information that last winter no home was permitted to have more than one open fireplace in operation at any time. No bedrooms were heated in hotels, all railroad stations were cold, all public buildings were unheated with the exception of the lounge room in large hotels, on top of that today we must ask England to deprive themselves of further coal by shipping considerable quantities to North Africa, rather than transporting it across the Atlantic from America. I am sure everybody in this room realizes when our armed forces invade a country they must feed, clothe and heat the people in these invaded areas."

#### High Quality Coal, Mine Safety and Dust Control

Problems of deep mining continued in meetings Tuesday afternoon. S. W. Blakslee, consulting mining engineer, Pittsburgh, Pa., served as chairman, and the subjects discussed were production of high quality coal from seams with variable conditions, the importance of safety in wartime mining, and an account of dust control methods in connection with operations in mechanical loading and conveyor mining.

John J. Snure, assistant production manager, Rochester and Pittsburgh Coal Company, Indiana, Pa., presented his paper entitled "Removing Seam Impurities Underground." He said in part: "The rapid exhaustion of high quality and the more easily mined seams of coal have made it necessary to produce a great portion of our yearly output from the thin veins, and from those that contain more impurities and have inferior physical conditions. This trend is becoming more acute each year, therefore, the industry must get the most out of specialized methods to suit the vein that is being worked. This means 'remove the impurities underground' and, if necessary, load the parts of the seams separately, providing, by doing so, a quality coal can be produced that will serve an important market." Mr. Neil Robinson, of Robinson and Robinson, mining engineers, discussed Mr. Blakslee's paper.

The subject of mine safety was discussed by E. R. Price, general superintendent, Inland Steel Company, Wheelwright, Ky., in a paper entitled "Safety in Wartime Mining." He presented facts showing how the stress of war has increased the safety problem

as well as the greater rate of absenteeism. He said in part: "We must recognize that many of our men are worried about the war. They have sons or brothers in the armed forces, and it is difficult for them, under these conditions to keep their minds focused upon their work. Tragedy to himself or his fellow workmen frequently occurs because of inattention to the job at hand."

John E. Jones, safety engineer of the Old Ben Coal Corporation, West Frankfort, Ill., presented a general discussion on the subject of coal mine safety, following Mr. Price's address.

The paper by Rodney H. Honaker, safety director of the Guyan Eagle Coal Co., Amherstdale, W. Va., was entitled "Coal Dust Control Underground" and was read by Mr. Jorgensen. Touching upon the most recent practice in combating coal dust, he said, "The most recent development in the use of chemicals is a wetting agent. Wetting agents have their effectiveness in their ability to reduce the surface tension of this solution and consequently the inter-facial tension between the solution and the small particles of coal dust. These agents enable the solution to wet and trap small particles of coal faster, causing them to fall to the floor before they are disbursed in the air."

Operators of strip mines met Tuesday afternoon to hear two interesting papers. Tom Cheasley, field manager, Sinclair Coal Company, Kanas City, Mo., was chairman. "Stripping with Draglines of Three to Nine-Yard Capacities" was the title of a paper presented by Harrison Eiteljorg, general manager, Morgan Coal Co., Indianapolis, Ind. He said that the advantages of draglines for coal stripping are becoming more and more recognized each year and he proceeded to explain these advantages.

T. H. Latimer, engineer, United Electric Coal Companies, Chicago, Ill., discussed the subject of "Moving Overburden with Large Draglines." He pointed out the features of a pat-

ented "method of stripping," issued August, 1942, to T. C. Mullins and the late Roy Weimer of the Northern Illinois Coal Company. Mr. Latimer said, "This new method has not yet been put to full use but undoubtedly will in the near future. While it cannot be applied to all kinds of overburden material, it certainly showed signs of great promise in the proper bank. The Weimer patent, among other things, increases the depth of bank any given dragline can successfully handle. A study of this patented method will be of utmost interest to all in the stripping industry."

#### A. S. Knoizen Advises on Manufacturing Schedules

Manufacturers also met Tuesday afternoon with officials of the Mining Equipment Division of WPB for discussion of allotments, equipment scheduling and general problems confronting mine equipment manufacturers serving the coal industry. George E. Stringfellow, chairman, introduced Mr. Knoizen who explained to the manufacturers why it has been difficult for them to meet some of their manufacturing schedules. He said, "Right now our very critical period is demanding production machinery at the coal face. Cutting machines, drills, loading machines, locomotive and transportation equipment of all kinds are part of this critical picture that we need to replace the manpower that we are losing daily." Following Mr. Knoizen's remarks the meeting was thrown open to questions and many matters were clarified and better understood as a result of this general discussion.

The two-day meeting was closed by the annual dinner Tuesday evening, with Irwin Davis, president, Hatfield-Campbell Creek Coal Company, as toastmaster. Speakers were Carl E. Newton, Deputy Federal Coal Mines Administrator; Rear Admiral C. H.



Purchasing agents . . . why can't the red tape be cut?

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Woodward, United States Navy; and Fire Controlman E. L. Harrison of the Cruiser San Francisco. Mr. Newton's address was broadcast over a national radio hook-up over the Mutual System.

### Carl E. Newton Tells the Coal Industry—

"GENTLEMEN, I cannot make you a comforting address. The facts would not justing it

not justiy it.

"I feel it my responsibility to tell you and to tell the public, through this radio network, of the gravity of the crisis which the coal mining industry

now faces.

"Coal production has been disrupted by the work stoppages following the inability of the industry and the mine workers to arrive at a new wage agreement. I do not propose to attempt to allocate the blame for this situation, and nothing that I say should be construed as doing that. Regardless of blame, it can and must be remedied as soon as possible.

"Because uninterrupted production must be maintained to produce coal to win the war, the Government took control of the mines. It did so because a set of circumstances had led to interruptions in coal production which imperiled the war program. The Government's job is to keep the machinery of coal production running until such time as operators and mine workers can arrive at a solution of their differences which will enable them thereafter to cooperate together in the production of coal without the intervention of Government machinery. I hope that such a solution is not far distant. The more prolonged is Government control of your properties, the more critical will inevitably become the danger to your industry and to the Nation.

"Your industry is sound, essentially. It has done a good war job, prior to this crisis. Last year you produced 580,000,000 tons of bituminous coal and 60,000,000 tons of anthracite. This was 23,000,000 tons more bituminous coal than we consumed. Although we would have been more comfortable had you been able to supply more anthracite, we got along.

"Last year you built the greatest stockpile of bituminous coal in history. And, in doing it, you maintained the greatest bituminous coal production on record. "This certainly does not look as though you are ready to fold up as a privately owned and competitively operated industry, or that the national interest requires that you become burdened with permanent Government operation or control of your mines, nor does it indicate any economic or other reason why the management and worker personnel of the coal mining industry should be given the status of civil service employes or herded onto the Federal payroll.

"But as a result of the recent work stoppages the Nation has lost production. We must strive hard to make up for these losses. I believe it can be done

"I am well aware that you do not like Government control of your mines, Neither does Secretary Ickes. Neither do I. By the Connally-Smith Act Congress has expressed its will that the mines "shall be returned to the owners thereof as soon as practicable, but in no event more than 60 days after the restoration of the productive efficiency thereof prevailing prior to the taking possession thereof." There is There is nothing that Secretary Ickes or I would rather do than turn your mines back to you tomorrow. Until we can, however, we have the duty to see that the mines are operated so that coal is produced to fuel our national war requirements.

"I would not undertake to draw for this industry a blueprint of how to escape from its present dilemma. It would be presumptuous of me to do so. Once this industry brings unitedly to bear upon the solution of this critical problem the full force of the determination, intelligence, and resourcefulness of which it is capable, I am confident that it can formulate the basis for restoration to its proper place in the American economy, permanently free of governmental control-that a way out can be found. Of course any agreement or solution that might be arrived at would necessarily be subject to the President's stabilization program and to review by all governmental agencies having jurisdiction in the premises.

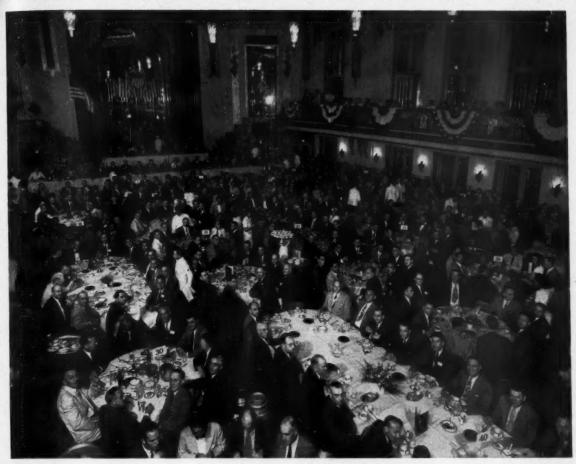
"Production has increased progressively ever since the end of the most recent nationwide stoppage. The coal is coming out of the ground now and the Coal Mines Administration will do everything in its power to bring about increased production to the maximum possible with the manpower and facilities that are available. During the past two weeks I have been in consultation with representatives of both operators and mine workers. They are cooperating with the Coal Mines Administration.

"We intend to continue to rely primarily upon the cooperation of the industry—operators and mine workers—for the accomplishment of our objective. We have a hard job ahead

30

Annual dinner. Left to right, Geo. E. Stringfellow, James D. Francis, Senator Revercomb of West Virginia, Carl E. Newton, Irwin Davis, toastmaster; Rear Admiral Woodward, U.S.N.; Harry M. Moses, W. J. Jenkins, and Heath S. Clark. . . . The home front and the armed forces fire a broadside





Overflow gathering at annual dinner. . . . From this meeting to the nation went a thought provoking message from the Government's Coal Mine Administration

of us. We have raised our sights for coal production to a higher level than we aimed at last year-65,000,000 tons of anthracite-600,000,000 tons of bituminous.

"As the war progresses, it will become increasingly difficult to maintain production requirements. Even with peace on the labor front, the task of maintaining production would grow progressively more difficult because of the increased strain of the war upon our economy.

"We see our production goals and we know what is required of the coal industry to attain them. We can visualize the results that would attend failure to produce enough coal to win the war. These objectives are clear. We must act now to attain them.

"Now I shall address myself to an aspect of this situation that is of grave concern to every member of the coal industry, and indeed that is creating a wave of apprehension throughout the The question that is being asked in the press of the nation is: Does this protend the nationalization of one of our basic industries? I shall try to answer that question as fairly as I know how.

"Secretary Ickes and I are resolutely determined to resist any trend toward nationalization of the coal mines. Secretary Ickes has made that clear to Congress. Nevertheless, we cannot close our eyes to the facts. If this industry can achieve permanent peace in its labor relations, your apprehensions would soon be set at rest. But if unsettled conditions which precipitated this crisis should long endure, or if the Government should turn the mines back and have to take them over again repeatedly, then I don't see how you can reasonably expect to avoid a progressive tightening of Government supervision and control of mine operations. Government control would inevitably grow where conditions exist which bring public pressure for Government action. Can we turn Government control on and off with impunity?

"Pause for a moment and observe what has happened in Great Britain. "Laws prohibiting strikes, under heavy penalties, have failed to prevent

The British coal industry has

had many problems to deal with similar to our own; high production costs, instability of prices, wages, and employment. Over a period of years, un-settled conditions have called for a series of governmental solutions.

"His Majesty's Government now owns the coal reserves. It controls the operation of the mines, and it allocates the coal to the consumers. It has poured millions of pounds of public funds into the industry. Yet the evils which were sought to be cured by the steps along the road to nationalization remain uncured. Today Great Britain's coal industry is not a free or competitive enterprise. And it has lost productive strength to the extent that the mines no longer can adequately meet war-expanded coal requirements.

"In the light of the fact that Great Britain has traveled far on the road to nationalization of its coal industry, can we Americans afford to be complacent?

Since taking office on July 1 I have

been subjected to many heavy and insistent pressures from various sources to do things which, in my view, would be a long step on the road to



The Navy congratulates the Navy . . . Rear Admirel C. H. Woodward shakes hands with Fire Controlman Edgar L. Harrison of the famous cruiser "San Francisco." Julian D. Conover, Secretary, reflects the appreciation of the American Mining Congress

nationalization of the coal mining industry. You may be surprised when I tell you that some of the heaviest and most insistent of these pressures have come from members of your own industry. I have received dozens of telegrams from mine operators urging immediate advance of Federal funds, and threatening to shut down their mines unless these funds are forthcoming.

"Secretary Ickes and I have resolutely resisted all of these pressures. To date, the Coal Mines Administration has not advanced one dollar to any operator. Some mines have shut down, as they have in every year, and as they will continue to do as long as coal is mined. But aggregate coal production is creeping up—not sliding off.

"However sympathetic we may be to these operators in their difficulties, are they so shortsighted that they cannot see what their demands for Federal funds would lead to if we compiled with them? Easy money for one operator would create a torrent of demands from other operators. Gentlemen, don't think that the Government is goin to give you the taxpayers' money to risk in your business instead of risking your own!

"If Uncle Sam should open wide his purse to the coal industry, then the coal industry would wake up some day and find out that it is in hock up to its neck to Uncle Sam. Can there be any doubt about it? It has been my observation that when a company is heavily indebted to its banker, the banker will tell that company pretty much what salaries and dividends it can pay and otherwise how it must

conduct its business. "Who pays the piper calls the tune." That is as true of the taxpayers money as it is of private funds.

"I see no evidence yet and I hope I shall never see any evidence that the industry as a whole cannot fulfill its national responsibility for the production of coal without substantial use of public funds,

"Secretary Ickes and I do not propose to be panicked into opening the flood gates of public moneys by the threat of mine shutdowns or by claims of Government liability for operating expenses of maturing debt. We intend to continue to resist with determination the diverse pressures that would make the Coal Mines Administration play Santa Claus to the coal industry. Such pressures always look reasonable on their face. But all of us must be alert to look behind appearances and firmly resist such pressures because of where they will lead us.

"Yet ridiculous rumors are abroad to the effect that Secretary Ickes and I are conspiring with various persons, named and unnamed, to nationalize the coal mines. Our actions are the best denial of these rumors.

"No American could believe more profoundly than I in the American system of free competitive enterprise. I have served in Government office before and I have also been in business. I know well the formalism, the channels, the protocol, which must necessarily attend the effective discharge of governmental functions. But governmental functions are essentially regulatory, and hence are basically different in nature from business functions. The deliberative and regula-

tory machinery of Government produces delays and does not produce effective commercial results when applied to business objectives—under any auspices. In business, Government procedures do not promote initiative, incentives, or progress.

"The strength and common good of this Nation—our whole future—lies in the preservation of the American concept of free men and free competitive enterprise. This concept is the thing which won our independence, the thing that has made us great as a nation, that has made of our American democracy the torch of aspiration for the bruted peoples of the world. It is the thing that has enabled us to win all of our wars in the past and which is enabling us to win this one.

"The regimented peoples and their leaders will never be able to understand how, with all their surface dissensions, the sons and heirs of this American concept can rise from bickerings and confusions to united heights so quickly and operate with such precise and devasting efficiency in emergencies.

"This concept of which we are the custodians, therefore, is and must remain the great secret weapon on which our liberties depend.

"We on the home front owe it to our sons and brothers on the battle fronts of the world, as well as to our history, to be vigilant to preserve it, for that is what they are fighting to preserve. They expect no less from us.

"If America should lose it, it would no longer be America."

#### Rear Admiral Woodward Speaks About Over-Confidence

A highlight of Mr. Davis' talk before he introduced the speakers was of special interest to members. He said, "A new spirit has gripped this Congress. It has displayed a firmness of conviction, a stiffening of its collective backbone, an intensity for justice and fair play and a faith in the future of our industry which is wrapped up in the prosperity of these United States. This is heartening; a grim seriousness permeates our activity."

Rear Admiral Woodward directed his remarks, not to the audience as operators of coal mines, but as citizens of the United States. He said, "I want to talk about our home-front attitude toward the progress of the war. I want to remind you that here at home we have no more important duty than to observe the recent favorable turn of events calmly, logically, and realistically, without undue optimism at our current victories or undue pessimism at our future setbacks, for believe me there will be future setbacks before this war is over.

(Continued on page 60)

# The Scope of Cyanamid Service to Present and Potential Users of Flotation Machines

CORNERSTONE of Cyanamid Service for over a quarter-century has been an unprejudiced Technical Service backed by comprehensive Laboratory Testing and Research facilities to recommend processes and reagents best suited for the ore being treated and the operating conditions involved. New developments of the Cyanamid Ore Dressing Laboratory and additions to the processes and machines offered by Cyanamid have steadily increased our ability to serve.

Cyanamid offers both the Fagergren Flotation Machine and the Steffensen Flotation Machine. The Fagergren is a straight mechanical machine embodying the rotorstator principle; the Steffensen an air machine employing a new and highly efficient dispersion principle. Different in fundamental principle, they have many common advantages: (1) Simplicity through modern design, (2) Unit- or multiple-cell construction, (3) Intense aeration, (4) Ability to start after shutdown without draining cells, (5) Low reagent consumption, (6) Low operating cost, (7) Minimum use of scarce construction materials.

#### TO PRESENT USERS OF FLOTATION

Cyanamid Field Engineers will be glad to discuss flotation machine installations with operating officials who are contemplating increasing mill capacity or making changes to improve existing metallurgy. Cyanamid's recommendation as to choice between the Steffensen Flotation Machine and the Fagergren Flotation Machine will be dictated by economic factors. In making recommendations, use of existing tanks, blowers, motors, drives, and capital investment involved will be given careful consideration.

#### TO POTENTIAL USERS OF FLOTATION

Cyanamid offers the cooperation of its Field Engineers and Metallurgists in studying the metallurgical problems; the facilities of the Cyanamid Ore Dressing Laboratory in testing ores and developing the optimum flow scheme; unbiased recommendation on types of flotation machines; help in putting the new mill into smooth operation; dependable service in supplying complete reagent needs.

For those who, through pressure of work or lack of immediate need may not have kept abreast of the details of developments in this field, we picture and describe current models of Steffensen and Fagergren Flotation Machines in the pages immediately following.



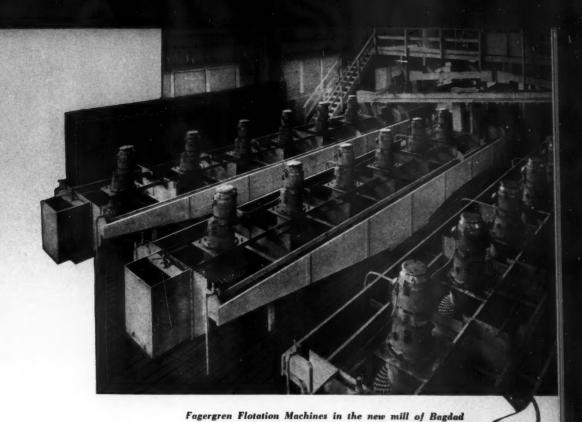


The Steffensen Flotation Machine represents the application of modern design to one of the oldest flotation machine principles. Retaining the inherent simplicity and absence of moving parts of a free-air machine, the Steffensen incorporates a new and effective air dispersion element which produces a lively, small-bubbled froth. Result is higher metallurgical efficiency than heretofore deemed possible with an air machine. For a given blower capacity Steffensen Flotation Machines will generally increase mill output as well as improve metallurgy.

Of unit-cell construction, the Steffensen consists of an inverted, pyramidal tank with rectangular top. The air header may be placed above the cells or below (as shown). The latter installation saves headroom, simplifies piping and has certain operating advantages.

Tanks may be constructed of steel, wood or concrete. By purchasing dispersion units only, the user can easily fabricate the balance of the equipment on the property or at a nearby shop. Therefore, the first cost of a Steffensen Flotation Machine installation can be very low indeed.

AMERICAN CYANAMID COMPANY



Fagergren Flotation Machines have compiled an enviable record for high metallurgical efficiency, capacity and low-cost operation. The Fagergren Rotor-Stator principle is the basic element which has made this machine outstanding in the mechanical field.

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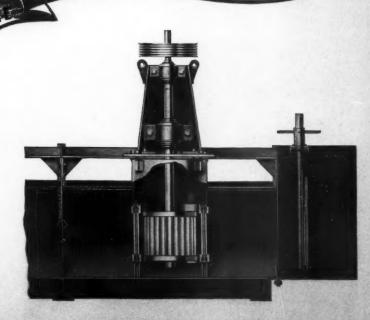
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Fagergren Flotation Machines are of level-cell design and are constructed as one, two, three and four cell units. Standard Fagergren cells are equipped with V-belt drives so that the proper rotor speed may be secured to suit individual requirements. Where optimum rotor speed has been pre-determined by mill-scale test work, direct-connected gearmotors can be supplied — as shown in the illustration above.

To save freight cost, Fagergren tanks can be fabricated by the user or in a local shop from working drawings, the rotor and stator units being supplied by Cyanamid. Although steel is generally used for Fagergren tank construction, concrete and wooden tanks have been used successfully for several years by large copper producers whose local conditions permitted such constructions.

FAGERGREN FLOTATION MACHINE

Copper Corporation which was designed and built by Southwestern Engineering Company

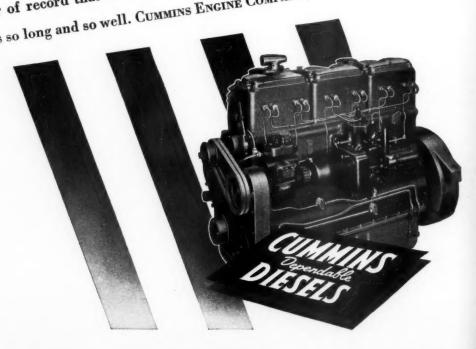


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Logging, mining, marine, oil fields, construction, manufacturing and highway truck transportation . . . these are industries essential to a nation at work or a nation at war. In more than a decade of service-spanning both peace and war-these same essential industries have demonstrated that Cummins Diesel power is essential to maximum production at minimum cost.

It is a matter of record that no other American Diesel has ever served so many industries so long and so well. Cummins Engine Company, Columbus, Ind.



# Plan Your Wartime Power Distribution System

THERE are 50,000 miles of electrified haulage in the various mines of the United States and this mileage is greater than the mileage of all our electrified railroads and street railways. During the week ending May 9, 1943, approximately 249 tons of coal were loaded for each mile of electrified mine track. These facts serve to emphasize the importance of mine transportation.

The bad effects of low voltage, the troubles caused by high resistance circuits, and the additional cost resulting from leaking hangers and insulators are old stories. High resistance in the mine circuit causes low voltage, and low voltage means higher transportation costs. Leaking hangers are not only a hazard to mine operation but add to the electrical costs. I want to discuss this voltage problem from the standpoint of electrical leakage and feeder capacity, emphasizing that copper is a vital metal and must be used efficiently.

#### Electrical Leakage Affects Copper

The amount of current flowing across one leaking hanger is very small, but a number of leaking hang-

With wartime demands for copper so great, mine operators who are contemplating installation of electric haulage are urged to carefully study their power requirements

By L. W. BIRCH
Engineer, Transportation Dept.
Ohio Brass Company

ers wastes considerable energy. The maximum current leakage across a single composition hanger is only 50 milliamperes, which is .05 ampere. Now let us consider a two-mile haulage way and assume that half the hangers are leaking. If the hanger spacing is 10 ft. there will be a total of 1,000 hangers in the line, 500 of which are leaking and the leakage on this 2-mile haul is 25 amperes—sufficient current to operate a 10-h.p. motor.

Hanger leakage is reduced or eliminated by the proper selection of the quantity as well as the quality of insulation. The hanger may leak because it has punctured. It may also leak because of surface contamination or moisture. Since the resistance of the leakage path is proportional to its length, the common method of reduc-

ing leakage is to add additional insulation in series with that already in place. This is the usual method followed in many wet mines where the mine water deposits conducting material over the surface of the insulation.

#### Cost vs. Voltage Drop Becomes Important Consideration

One of the main causes of low voltage is inadequate current-carrying capacity in the distribution system, the greatest loss occurring in the underground circuit. Low voltage means high power costs while high voltage means high feeder costs. It is always necessary to balance these two factors in order to obtain the most economical feeder system since the cost per kwh. may be greatly varied by the choice of feeder capacity. For example, let us assume a 2-mile underground haulage system with a concentrated load of 200 amperes at the end of the line and d.c. power at a cost of \$.02 per kwh. This load is required 200 days a year and 7 hours a day or a total of 1,400 hours per year. The track is constructed with 40-lb. rails. A comparison of the cost per kwh. for various amounts of overhead copper is shown in Table I.

This table shows high energy costs for both the 4/0 and 2,000,000 circ. mil feeder. Low energy costs are secured with the two intermediate cables. Although copper is saved by using the 400,000 circ. mil cable, the final choice of cable size is dependent on the allowable voltage drop. The last line in the tabulation shows the effect of bonding only one rail. Both voltage drop and power cost have increased.



Sectionalizing feeder by means of a fuse safety switch

Editor's Note: This article directed at the wartime problem of conserving copper was taken from a paper given by the author at a recent meeting of the Monongahela Valley Mining Institute, Morgantown, W. Va.

#### Size of Bond Secondary to Proper Maintenance

Although the size of the track bond is important, proper maintenance of the bond is more important. The difference between the 2/0 and 4/0 bond from the standpoint of resistance per joint is negligible as compared to the track resistance when a bond has dropped off the rail. It is frequently the practice in mine circuits to bond to approximately 35 percent of the capacity of the rail. As an example, a 2/0 bond is usually selected for a 40-lb. rail. On the other hand, if the bond drops off the rail it is almost equivalent to eliminating one complete 40-lb. rail circuit.

The variation in voltage drop for several sizes of bonds on a 5,000-ft. section of track with a current flow of 100 amperes is interesting. Let us assume the rail length is 30 ft., which will require 166 joints per single rail. The voltage drop will be as shown in the following example:

Bond capacity 24-in. bond 12-in, bond

	volts	volts
400,000 c.m.	6.5	6.5
4/0	7.7	7.1
2/0	8.7	7.6

It is noted that for a 24-in, bond the voltage drop is only 2.2 volts more for a 2/0 bond than for a 400,000 circ. mil bond. You will also note that decreasing the length of the bond to 12-in. saves only 1.1 volts for the 2/0 size.

#### Importance of Crossbonding

Crossbonding is decidedly necessary on all electrified track. In the foregoing example perhaps we can determine just how necessary crossbonding is, if we compare a 500-ft. crossbonded section with a 1,000-ft. crossbonded section (Table II), and at the same time make comparisons with one track bond broken per section, two track bonds broken per section, etc. The track bond is 2/0, 24-in.

The tabulations show that the size of a track bond is not as important as its proper maintenance since high-voltage drop in the track requires more copper in the overhead system.

#### Minimum Copper Best Basis for Determining Feeder Capacities

Feeder cable sizes should not be selected on a "hit-and-miss" basis. Neither is it necessary to base a selection on complicated mathematics and a full knowledge of electrical engineering. There are simple methods of determining feeder capacities and these methods are accurate and easy to understand. Remember, because of present conditions we are interested in conserving copper and not installing "plenty to play safe."

Although the electrical load at a mine substation varies considerably, it

		TABL	ΕI		
Overhead Copper	Volt. Drop	Cost of Add. Feeder	Loss Kwh.	Cost of Add. Feeder Dist. over 10 years	Actual Cost per Kwh at Load
4/0	128		36,800		4.0c
400,000	80	1,200	22,400	120	3.1c
1,000,000	50	4,840	14,000	480	3.4c
2,000,000	38	12,100	10,600	1,200	4.0c
1,000,000 (with one rail bonded	70	1,200	19,600	480	*3.7c

TABLE II		
	Spacing for 500 ft.	Cross-bonds 1,000 ft.
	volts	volts
One track bond broken	9.6	10.4
Two track bonds broken (separate sections)	10.4	12.2
Three track bonds broken (separate sections)	11.3	13.9
Four track bonds broken (separate sections)	12.2	15.7
Five track bonds broken (separate sections)	13.1	17.4
One bond broken in each section	17.4	17.4

is practically impossible to operate each piece of equipment simultaneously at full load. Some locomotives are running full load while other locomotives are stopped. Cutting machines, loaders and other equipment are also operated intermittently and, when in operation, this equipment does not necessarily draw full load current. Therefore the maximum load or horsepower connected to the system is not the horsepower to be considered when calculating feeder circuits. Only a portion of this horsepower is considered. This portion, expressed in percent, is known as the "plant factor." It is usually less than 50 percent and frequently ranges around 35 percent which, incidentally, is the usual plant factor for street railway operation.

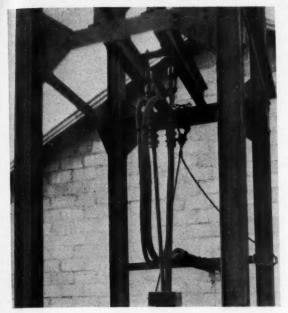
#### Finding the Load Center

For the purpose of determining the total amount of copper necessary for a given circuit with various loads, all electrical loads may be combined and located at a predetermined point known as the "load center." The load center may be determined by calculation or it may be determined by a simple method of balancing weights on a rod.

This device consists of a rod of small diameter to which is attached a number of small weights. The weights are in proportion to the horsepower of the various electric motors and the length of the rod is made to scale, usually 1 in. per 100 ft. of mine haulage. For a particular mine layout the rod is cut to scale to represent the full length of the



Sectionalizing feeder by means of a pair of quick brake switches mounted to the roof



Main power cables should be properly supported at bore hole entrance

mine and the weights are selected in proportion to the magnitude of the electrical loads. A straight rod is not necessary. It can be bent to correspond to the alignment of the main haulageway. The weights representing the electrical loads are then located to scale along the rod. Loads operating in side entries are usually fairly close to the main haulageway and can be placed on the rod at the point where the side entry intersects the main haulageway. It is not necessary to make a precision job for load center calculation. Washers or some other light pieces can be used; for example, 100 washers=100 hp., 50 washers=50 hp., etc. However, the weight of the rod should not exceed approximately one-seventh of the total weight of the washers.

After the loads have been placed on the rod in accordance with their location in the mine, the electrical load center is determined by finding the balancing point or pivot point of the rod. The rod may be picked up at various points until the exact balance point is found. This balance point determines the electrical load center of the mine, and since the rod has been cut to scale, the distance from substation to the load center can be definitely determined.

#### **One Simple Formula Determines** Amount of Copper

After the load center has been determined the total amount of copper necessary between the substation and the load center can be easily calculated by a simple formula which takes into consideration the known facts, including distances, total load, plant factor and weight of rail. formula is:

$$\text{C.M.} = \frac{31.1 \times \text{L} \times \text{hp}}{\text{E} - \text{e}}$$

In the above formula:

hp=Total horsepower connected to mine circuit multiplied by plant factor.
L=Distance from substation to load

center.

E = Total allowable drop from substation to end of circuit.

e = Total drop in track from substation

tion to end of circuit  $=\frac{d \times hp}{600w}$ w=Weight of rail in pounds per

d=Total length of mine circuit.
C.M.=Circular mil capacity of uniform cable from substation to load

Substitution in the above formula determines the circular mil capacity of a uniform cable extending from the substation to the electrical load center. Of course, mine feeder is not

installed in this manner since a uniform cable terminating at the load center will not maintain the voltage anticipated for the end of the circuit. However, the weight of this uniform cable is equal to the total weight of feeder necessary for the entire haulageway. Therefore the above formula has furnished the pounds of feeder but not the actual sizes that would be selected for the full distance.

Two methods are available for determining the exact cable sizes (trolley wire plus feeder cable) between the substation and the end of the mine circuit. In the first method a cable of uniform size is carried from the substation to the end of the circuit while in the second method the cable is tapered from the substation to the end of the circuit. In the latter case the largest cable is nearest the substation while subsequent sections reduce in size as each electrical load is reached. The advantage of a uniform cable is simplicity of installation, while the advantage of a tapered cable is to be found in higher voltage nearer the substation. Both methods are economical in that they use the same weight of copper and produce the same voltage at the end of the circuit. Probably a clearer conception of the two methods of determining copper for a mine circuit can be obtained from an example.

#### A Practical Problem Involving 40-lb. Rail for a 6,000 Ft. Haulageway

In Fig. I a 6,000-ft. haulageway is illustrated. Various loads have been distributed along the haulageway at definite locations. The rail is 40-lb. and the maximum voltage drop at the extreme end is 60 volts. In order to determine the electrical load center, the rod and weight method may be followed. With this method the electrical load center is





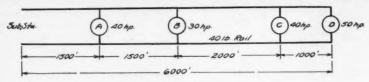


Fig. I. A practical problem

found to be 4,000 ft, from the substation. The value of "e" (voltage drop in track) is:

$$e = \frac{6,000 \times 160}{600 \times 40 = 40 \text{ volts}}$$

The circular mil capacity of the cable between the load center and the substation is found by substituting in the formula:

C.M. 
$$=\frac{31.1\times4000\times160}{60-40}$$
  $=995,000$  cir. mil

As pointed out in a preceding paragraph, this is not the cable that would be used but will provide the total amount of copper necessary for the feeder system. If a uniform cable is strung from the substation to the end of the circuit it is only necessary to distribute the above amount of copper over the entire circuit. Since the load center is 4,000 ft. from the substation and since the circuit is 6,000 ft. long, the uniform cable would be

mil. This capacity, in actual practice, might be divided between a 4/0 trolley wire and a 500,000 circ. mil feeder cable.

6000×995,000, which is 663,000 circ.

If a tapered cable is required in order to secure comparatively higher voltages nearer the substation, the total copper required in the tapered cable is still equivalent to the pounds of copper in the theoretic cable obtained by the above formula. In other words, the pounds of copper in the 4,000 ft. of 995,000 circ. mil cable must be distributed in a different manner and can be determined by the proportion of load in a given section to the total load. The sizes of cable are:

Substation to A 
$$\frac{160}{160} \times 995,000 = 995,000$$
A to B 
$$\frac{120}{160} \times 995,000 = 746,000$$
B to C 
$$\frac{90}{160} \times 995,000 = 560,000$$
C to D 
$$\frac{50}{160} \times 995,000 = 411,000$$
eire, mil

In the above calculations the multiplier 995,000 is the circular mil capacity of the theoretic cable determined by the formula. The total load in the circuit is 160 hp. and the loads in the sections starting from the substation are 160, 120, 90 and 50 hp., respectively.

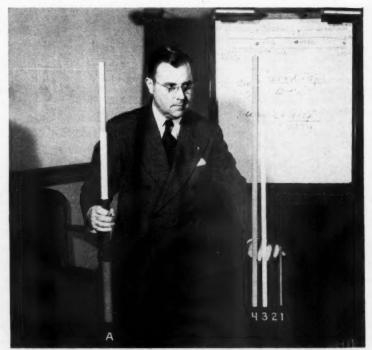
#### Uniform Voltage Drop Requires More Copper

Frequently feeder copper is calculated on the basis of a uniform voltage drop from the substation to the end of the circuit. In the preceding example the distance from the substation to the first load, "A," is 1,500 ft. On the basis of a uniform voltage drop, the total drop at "A" would be 15 volts and the total feeder necessary between the substation and "A" would be 1,350,000 circ. mil. This is considerably higher than the size (995,000 circ. mil) calculated by the load center method. Therefore, it is evident that a careful consideration of the method of calculating will save vital copper. Of course, the larger cable provides higher voltages near the substation, but this may not be

Copper is also saved by a careful consideration of the balance of conductivity between the overhead system and the rail. The most economical distribution circuit does not have greater copper equivalent in the overhead system than in track. For light loads the overhead capacity is usually below that of the track, but for heavy loads the copper equivalent of the overhead system is frequently found to be above that of the track. This is uneconomical because the voltage drop in the track may be too great.

The unbalanced conductivity of overhead and track can be easily understood by assuming that two 40-lb. rails (800,000 circ. mil copper) are used for the return circuit while the overhead feeder and trolley wire total twice this amount (1,600,000 circ, mil). The voltage drop for 500 amperes in a 2,000-ft. circuit would If the conductivity is be 19.5 volts. equally distributed between rail and overhead, the overhead system will be reduced to 1,200,000 circ. mil and a negative feeder of 400,000 circ. mil will be installed parallel to the rail. The voltage drop in the 2,000-ft, circuit will be 17.6 volts, which is a saving of almost 2 volts without the use of additional copper.

At the present time the use of less copper is imperative. Our supply is limited. A little study before installation, a little care after installation, will give satisfactory results, and every pound of vital copper will be used efficiently.



The four separate cables on the right represent the amount of copper necessary to feed separate circuits of 100 amperes each at distances of 4,000, 3,000, 2,000 and 1,000 ft. respectively, with a 40-volt drop in each circuit. These four circuits may be combined into one cable similar to "A" on the left



Wheelwright, Ky., today. A town up to modern American standards, with plumbing in every home, a clubhouse, a swimming pool, well kept lawns, smart stores, good schools and a hopeful, forward-looking people

# Transformation of a Coal Mining Town\*

Author's Foreword - Coal mining towns and Kentucky mountain people are two tempting subjects for any pen. Wheelwright combines bothso an opportunity to tell the story of Wheelwright found me ready and eager. Yet I came to Wheelwright with some trepidation; for deeply etched into my memory was a depressing picture of coal mining towns through which I had journeyed in years past. It was heartening, therefore, to discover a pleasant little town with a standard of living far different from that which I had expected to find. Wheelwright tells an absorbing story of the transformation of a company mining town. What has been accomplished is described not as an example of social, industrial welfare, but rather as proof that even in an Appalachian coal mining town profitable production can go hand in hand with a program that protects human values.

\* In the interest of public relations in the coal industry Mining Congress Journal presents this abstract from an attractive brochure recently issued by the Inland Steel Company.

The Inland Steel Company's far-seeing program of affording better living for miners and their families has made the mining community of Wheelwright, Kentucky, a modern little city

#### By LEWIS M. WILLIAMS

N 1916 Wheelwright began as a tent camp. Coal was mined and stored, as there was no way to ship it out of the valley.

Tents were succeeded by floorless frame shacks lined with building paper, as soon as the materials could be hauled by ox team 18 miles over the mountain from the nearest railway. They tell of an engineer in his bed at the bunk house, wakened by a prodigious down-pour of rain—swinging up out of bed only to plunge both feet into 6 in. of icy water and mud.

These temporary structures, characteristic of new mine development, were soon replaced by new and better buildings. Many of the sturdy frame houses on post foundations, erected at

that time and later remodeled, are still in use as miners' homes. Water for the miners' houses was provided by a series of wells, and was pumped by hand. Sanitation was "au naturel"—outside privies, and open sewage into Otter Creek. Such facilities have always been and are today common to nearly all coal mine towns.

In 1930 Wheelwright was in general a typical coal town, yet considered above average—was looked upon, indeed, as a "good town." In 1930 was born the far-seeing program that was to remake Wheelwright—a program looking to the betterment of living conditions for the mine community, and to safer and more efficient operation of the mine itself. In 1930 Inland Steel came to Wheefwright.

#### Making a Better Mine

Inland's first and obvious task was to rehabilitate the mine—to achieve operating efficiency and safety underground. That task was done, promptly and effectively. Today Wheelwright is a prosperous, paying property, standing firmly on its own feet; and once possessor of a poor safety record, it now enjoys a greatly improved accident experience as to both frequency and severity.

From 400,000 tons of coal annually, production has grown steadily. Elk Horn's top was in 1929—586,278 tons, with an average output per day of 1,891 tons. Today a normal day's coal output is 6,500 tons. In May, 1941, a total of 169,326 tons tumbled into waiting cars. And in 1942, total production exceeded 1,750,000 tons.

Step 1 in mine rehabilitation was a much needed better ventilating system. Fan equipment was installed to provide good ventilation for all sections of the mine. At the same time new sub-stations were constructed, one of them inside the mine, to provide adequate power.

In 1931 came a new steel and concrete tipple designed to handle 6,000 tons in eight hours; an aerial tramway for refuse disposal; a headhouse with rotary dump; and later a cleaning plant to recover machine cuttings previously gobbed in the mine or hauled to the surface and dumped as refuse. New all-steel mine cars were purchased, and the locomotive equipment was completely overhauled.

A new inside repair shop was built about 1,000 ft. in from the mine opening on the empty track. Here all rolling stock can be stored, serviced, and repaired. A modern, well equipped machine shop was constructed on the surface close to the mine opening. The track was realigned and regraded.

A miner's bath house was built, with adequate shower bath facilities, individual lockers, and separate quarters for white and colored. Most of the men use the bath house, and go home clean.

#### Miners Urged to Think in Terms of Safety First

Most important, of course, is the intensive work in safety, which never ceases. Soon after Inland took over, a program was developed looking toward safer conditions, and based chiefly on education and discipline. Such obvious measures were adopted as safety clothing—protective hats, hard-toed shoes, and goggles. At first, the men were inclined to be skeptical about the hats; but under continuous urging and after several instances where hats and goggles prevented serious injuries, the objections disappeared.

In these Kentucky mountains some of the rock structure directly over



Miner loading coal direct from working face of seam

the coal is tricky and dangerous. In a top that seems solid to closest examination there may be a "kettle bottom" or a "horse back," and a huge dome of slate may drop without warning. Such conditions have been responsible for most of the fatal accidents since Inland took over in April, 1930.

The simplest precaution is to get the men to think all the time in terms of their own and others safety—and interest is maintained at the monthly meetings held in the air-conditioned movie theater. Safety talks are made, and accidents of the previous month are discussed, as well as accidents in other mines. These are "open" meetings—anybody can talk, and many do.

First aid instruction is general, and Wheelwright teams have won a number of trophies in First Aid Meets. No one is immune to disciplinary action. When men are found working under certain substandard conditions, they are promptly warned and are given warning slips which are posted on a permanent record. In extreme cases, in the interests of discipline, men may be laid off or discharged. That these measures have been effective is obvious from the much improved safety record of the Wheelwright mine.

#### Making a Better Community

Wheelwright's valley is about 2½ miles long—a narrow, twisting crease in the hills. Near the upper end, Otter Creek splits. Looking south up the valley the right hand branch goes on to Branham Hollow. The left branch swings east into Hall Hollow. Where the branches join is the center of town. Here stand the office building and club house, community building, stores, and theater, church and hospital, the mine tipple, bath house,



Protecting a child's right to health and happiness, miners' children swim in the modern swimming pool built by Inland at Wheelwright. The pool has a water purification system



The swimming pool is part of a program planned to provide health-building recreation throughout the year. Near the pool is a well equipped playground

railroad station, and other familiar symbols of "downtown."

In early Wheelwright, these various buildings were substantial frame structures; nothing fancy—just good utilitarian designs. The single street was unpaved and likely to be a morass in wet weather. Each house had its outside toilet, and each yard its piles of coal and ashes. Garbage and refuse were collected and hauled to "Garbage Hollow." A coal mine town, yes —but, even so, better than most.

When Inland took over Wheel-wright, things began to happen. The number one improvement was a water system, and the town was piped for water. Briefly, the system includes an adequate water supply, and a modern filtration plant. When first installed the system provided yard hydrants, with one outlet to every eight houses.

Next came pavement of Wheel-wright's street—singular. Generally speaking there is just one street in Wheelwright—a phenomenon attributable to Kentucky's narrow valleys. There isn't enough room for more than one street.

With improved roads leading down the valley outside, Wheelwright has easy access to the world, quite aside from rail transportation. A gas well on the property was cleaned out by the company; and recently gas has been made available to all mine workers' houses.

Wheelwright's accessibility became complete with the installation of an automatic telephone system. A miner may now have his private telephone.

Finally came the sewage system and the doing away, for good and all, with outside toilets! Somehow that great step more than any other is the symbol of Wheelwright's emancipation into the freedom of decency and wholesomeness.

Wheelwright's sewage system with its modern sewage disposal plant is adequate for a population of 3,600. That should be big enough, for the town now has about 440 homes, and it is difficult to see where any more could be put.

To finish the clean-up program, a modern garbage and trash incinerator was erected, and regular collections were established. "Garbage Hollow"

With the sewage system came other changes. Every house was plumbed for water, and the minimum improvement called for a kitchen sink, a hot water heater and tank, and an inside flush-type toilet. Complete bathrooms were optional and were added to about half the houses. In most intances—an interesting, significant fact—bath tubs were specified because of insistence by the children.

At this time a general plan of home reconditioning was mapped out. Some 30 different plans were drawn for different sized houses, and six were selected as most practicable. Costs were figured, and a new schedule of rentals was drawn up and submitted to each tenant. He could select whatever plan and conveniences he wanted. He was consulted as to the location of the addition, and if possible his wishes were followed. To many houses an extra room was added, and nearly every house was enlarged by at least one clothes closet or pantry.

As a part of the building program a practical maintenance plan was worked out. Homes receive regular attention for repairs, painting and general upkeep.

The building program required an enlargement of the water system. Capacity of the filtration plant was trebled, and 6 miles of additional water mains and service lines were laid. In the mine a 21,000,000-gallon

reservoir was provided by flooding a large worked-out area, building dams and raising 1,000 ft. of main-line track 4 ft. above its former level.

#### Wheelwright's Schools Are Excellent

In 1930 there was one four-room frame building for white children, and the colored school met in the one-room colored church. Today there are four school buildings for the whites—pleasant modern buildings for the grades and high school, two of brick and two frame. They have a total of 31 rooms, plus two auditoriums and a gymnasium. An attractive building houses the grade and high school for colored children—five rooms and a cafeteria. And the combined teaching staffs have grown from the original 5 to 27.

Education in Wheelwright is under the supervision of the county and Inland has no direct control. County authorities, however, look upon Inland management as enlightened and deeply interested in human development as well as industrial. The result is a close and effective cooperation between county and company. Inland loaned the county \$15,000 for construction of the first school building. This money is being repaid at the rate of \$1,000 a year. As the town has grown, other school buildings have been erected by the county. To encourage and aid that program, Inland provides fuel, light and filtered water a considerable item-to all schools, at no cost to the county.

That both the company and Wheel-wright residents are thoroughly in earnest in wanting first class schools, is indicated by the voluntary action of the Wheelwright Consolidated School District in voting on itself the maximum tax rate for school purposes—a tax payable almost entirely by the company which is by far the largest property owner in the district.

To offer some added incentive for getting an education, Inland, three years ago, established two annual scholarships, for graduates of Wheelwright High School. These awards are made on the basis of scholastic record, character, extra-curricular activity and qualities of all-around leadership. At the start the scholarships were limited to Inland's employes. This restriction was shortly removed. Inasmuch as the high school serves the school district with its radius of 15 miles, the student body is divided just about 50-50, employe and nonemploye. As it happens, however, all the scholarships thus far have been won by children of employes.

When the scholarships were first announced, many of the miners were suspicious. There's still some tendency to mistrust any proposal that appears too altruistic. Instinctively the questions arise—What are they trying to put over? What do they expect to get out of it? E. R. Price, general superintendent, tells of a conversation with a mine worker about the scholarships. The miner said, "Aw, those are only for office workers' kids. A miner's son would never get it!" Mr. Price smiles as he recalls that conversation; for he knew that the successful candidate, already named but not yet announced, was that same mine worker's son.

These young people are ambitious. They are keen to get an education. The boys want vocational courses, and aspire to be engineers. The girls want to go on to college or vocational schools—for business and nursing courses. That ambition for more knowledge and for a better way of life is the pressure that is forcing many Wheelwright families into a different living tempo.

Smallest in size yet not least in its contribution to better living is the newest venture—the public library, presided over with tact and enthusiasm by a young graduate of Berse

College.

#### Health and Hygiene

In the vital field of health and hygiene, Inland aspires to just one position—out in front; to be a vigorous leader in the battle to eradicate disease and improve health.

Wheelwright's hospital is small, but the company has provided modern equipment, adequate for the community's needs. The staff consists of three doctors, a technician and two nurses; and office and house calls aver-

age about 150 a day.

Dr. J. W. Bailey, physician in charge, is an experienced general practitioner, thoroughly familiar with mine injuries. Under his guidance and in some cases at his instigation, several interesting research studies have been carried on at Wheelwright, to advance health and safety in ming, and community hygiene in general. First of these was the inquiry into the summer dysentery epidemic, which laid the foundations for improvements in water supply and sanitation.

Of tuberculosis and typhoid, there is practically none. Miners are vaccinated for typhoid every three years. Vaccination is optional for the families, and practically all take it. In recent years a thorough study on silicosis was carried on, and this disease is found to be almost non-existent.

During the summer of 1942 Inland financed nutrition studies in Wheel-wright, with a special worker from the State Board of Health operating through the Red Cross, schools, missionary societies of the churches, and other groups.

That this intelligent program to create a healthier community has bene-

fited the company's accident experience in the mines, there can be equally little doubt. The two go together.

#### Community Buildings

A spacious second floor provides lodge quarters and an excellent dance floor in the attractive Community Building. The negroes also use the Community Hall for dances and other social activities. Across the street is the Club House, a name inherited from coal-camp days. This charming building serves as hospitable inn, delightful rooming house, and pleasant club house. In its comfortable rooms the traveler finds accommodations comparable with those in any city. In its dining room he eats in air-conditioned comfort. From the attractive lobby, a door leads to the Public Library; and beyond the library is the attractive Apparel Shop, with its modern fittings and its equally modern and modish merchandise.

proximately three-fourths of them live in Wheelwright and Burton. The others travel varying distances up to 40 miles. Eighty percent of the miners are of native white stock. The remainder is composed of Czechs, Hungarians, a few Italian and French, and negroes. Many of the whites are native Kentuckians, with a considerable number from local mountaineer families. These men are all members of the United Mine Workers, operating under the Big Sandy-Elkhorn District Agreement.

Wheelwright is known as a "good mine." Most of the miners who do not live at Wheelwright wish that they did. That they cannot is due to physical limitations beyond control. The company would cheerfully add new homes, as needed, were there any place to put them. The simple fact is that the valley is full. There's hardly a usable square foot left unoccupied.

It is always a keenly satisfying ex-



Bowling alleys in the club house

In the Club House basement are four first-class bowling alleys, and two pool tables. They get a big patronage. Next to the Community Building stands the attractive movie air-conditioned theatre.

But the real pride of Wheelwright is the swimming pool. It takes little imagination to see what a blessing that pool is, and what a vital influence in building health and character. A modern purification system keeps the pool's water constantly clean and tempered. A roomy, well-equipped playground and an excellent tennis court are close by.

Not far away, up the valley and well up the mountain side, is the Boy Scout Cabin. Wheelwright has active Scout troops, white and colored. Near the cabin is the outdoor oven, a tennis court and a hand-ball court.

#### Inland—And Labor

Inland's annual labor bill at Wheel-wright is in excess of \$2,000,000 and about 1,600 men are employed. Ap-

perience to undertake a project that is unorthodox, that does not have to be done-and see it develop into something sound and worthy. Wheelwright is such a project. There were few, if any precedents for what was done. There was ample precedent for doing nothing-for simply carrying on in the accustomed mining-camp tradition. That the task is incomplete, that much yet remains to be done, is the reminder frequently uttered by Inland management. Much good has been accomplished, to be sure-but Wheelwright still has its imperfections. To correct them, to work continuously toward a still better mining community -that is the program for protecting human values.

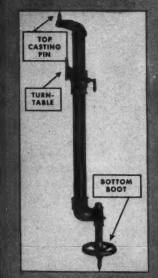
Wheelwright was planned and created, not in any futile hope of gratitude, but out of one sober conviction: that doing everything possible to make a wholesome, attractive community would prove to be thoroughly "good business."

# First Step to Fast Drilling-SET THE POST PROPERLY

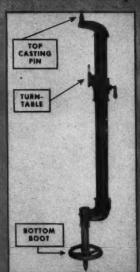
**S**ETTING up a CP Post-Mounted Electric Coal Drill is a very simple operation: there is only one thing to remember — the post should always be set up with the pin in the top casting, the turn-table and the bottom boot in alignment.

Set the post up properly and any one of the seven types of CP Post-Mounted Electric Coal Drills will give fast, low-cost drilling with a minimum of maintenance cost.

HOW TO GET MAXIMUM SERVICE FROM & POST-MOUNTED ELECTRIC COAL URILLS



WRONG WAY: Note that the pin in top casting, the turn table and bottom boot are not in alignment. This causes bent thread bars and augers; results in excessive wear on



aiGHT WAY: Pa in top casting, turn-table and bottom hoot are lined up. This keeps thread bars, augers straight: lessens wear on hubs, liners, drill parts, protects motor against excessive stain.



CP 574 Post-Mounted Electric Coal Drill. CP Drills are making new lows in drilling costs in the West Virginia, Eastern Onto, Southern Illinois, Pennsylvania and other bituminous fields.

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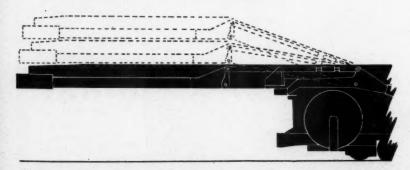
# \* Why You Need The "Automat" Parallel Lift Rear Conveyor-



★ You need the "Automat", with its parallel lift rear conveyor, to take full advantage of seam height because it is the only Mechanical loader with a rear conveyor and discharge and—ON THE LEVEL AND ALWAYS PARALLEL TO TRACK AT ALL ELEVATIONS.

The photo above illustrates this worthwhile advantage of the "Automat" clearly. The drawing below shows you the parallel-to-track-at-all-elevations action.

Regardless of height of car, when the "Automat" rear conveyor is raised to loading position by its easily operated hydraulic lift, loading end automatically remains parallel to track. Don't overlook the real advantages of this feature in limited head room for maximum production.



Here Is The Way To Find Height Available For Passage of Coal Over The "Automat's" Exclusive Parallel Lift Rear Conveyor.

First—Add 5" (space from bottom of conveyor frame to carrying surface) to height of loading end of car from top of rail. Second — Deduct this total from seam height, measured from rail to roof. The answer will be height from carrying surface of conveyor to roof at any point on the "Automat" rear conveyor. Check this for possible increase in haulage capacity of your cars. Myers-Whaley Company—283 Proctor Addn., Knoxville, Tennessee.

# **MYERS-WHALEY**

Mechanical Loaders Exclusively for over 35 years



# Coal Division Reports

# Moving and Resetting Underground Belt Conveyors

NE OF the most important phases of a conveyor mining system is the operation of installing the gathering belt which, in a complete panel cycle, includes setting up, extending, retracting, dismantling and moving the equipment to its new location. A number of problems are involved which require careful planning; these operations must be accomplished with the minimum labor and the time of moving must be scheduled so as to cause the least possible interruption to the coal production. As is generally true in mechanized mining, there is no one best plan; the committee is making a study on methods used and is presenting here the first of a series of reports describing actual practices.

#### **Methods of Moving and Resetting**

The procedure of moving and resetting a belt conveyor, as well as the amount of labor involved, depends upon a number of factors, such as belt length, distance of moving, method of moving; these factors in turn are influenced to quite a degree by the mining system and the following reports are submitted as illustrating three entirely diverse mining plans. As shown in the accompanying drawings, Mine A is a continuous advancing system in which no regular room entry is driven, but the belt is located in a line of room crosscuts; Mine B is a retreating system with the belt conveyor used in entry development and room work; Mine C is a retreating system where the belt conveyor is installed after the entry development is completed and is used only in the rooms and pillars.

These operations also illustrate three different ways in which a belt conveyor is moved and reset. In Mine A the belt remains at a constant length and, when moved to a new location, a part of the equipment is carried by hand or by hand trucks or dragged by the shortwall machine through the rooms, while the head and drive sections are taken in mine cars along the haulway. In Mine B, during the development and retreat of the panel, the conveyor is extended and shortened in 300-ft. lengths and at such times the belt is used for

A report presented to the Committee on Conveyor Mining, prepared by a special subcommittee.

transporting roller stands, frames, etc. When the panel is finished the entire equipment is loaded in mine cars on the main entry and hauled to the new location. In Mine C the belt is originally installed at its maximum length and is shortened periodically as the panel retreats; a supply track is laid in the belt entry and all of the conveyor equipment, in setting up and dismantling, is loaded and transported in mine cars.

#### Moving Costs

The reports for each of these three mines show the total man-hours employed for dismantling, moving and resetting the belt, and it will be noted that there is a wide variation between the amounts of labor used in these three systems. However, the man-hours figures (which reflect the moving cost) are not directly comparable for several reasons. In the first place, the cost per ton of coal for the belt move is determined by the tonnage of coal mined and the reports show that the panel tonnages vary considerably between these mines, due to different seam heights and panel areas. For example, several belt moves in Mine A would be required to produce the same

coal tonnage as a single move in Mine C. Second, the amount of labor shown for the belt move does not apply to exactly similar equipment in each of these mines. In Report A, the move includes transporting the room conveyors, cutting machines, etc., and these costs are not separated from the labor of moving the belt itself. The figures for Mine B are confined strictly to the belt equip-ment, but it will be noted that the cost for the complete belt move over the entire panel, in addition to dismantling and setting up the initial installation at the head end, must also include the labor for the extension and retraction of four 300-ft. sections which occur during the life of the panel. The report for Mine C covers the belt moving but further includes the additional cost of cleaning up the entry, as well as drilling, shooting, and handling the rock at the loading point where the conveyor discharges into the mine cars on the main haulway. When all of the foregoing is taken into account there is not the wide divergence in the manhour figures between these mines which at first glance appears to exist.



Moving this equipment requires careful planning

#### MINE A

#### ADVANCING PANEL

This operation is in a seam 54 in. high; conveyors for working the rooms discharge onto a 30-in. belt in the entry, which transports the coal to mine cars in the haulageway.

The mining system, as shown in the attached sketch, is modified room and pillar, in which a series of 12 rooms in a panel 470 ft. wide is advanced continuously-as opposed to the conventional advancing and retreating method. A line of breakthroughs driven across the rooms at 250- to 275-ft. intervals serves as a temporary room entry to the haulageway; the belt conveyor, 470 ft. long, is laid in this entry and is moved ahead periodically to the next breakthrough line as the panel progresses. The pillars are not recovered; consequently a part of the equipment can be taken through the rooms to the new location while the remainder is hauled in mine cars. A crew of 14 to 17 men is used to move and reset the panel equipment, consisting of belt, three room conveyors, three shortwall machines, three blowers and a car hoist, and while the total labor can not be subdivided, the following description will be confined to the belt conveyor.

#### Order of Moving

(1) One man removes cap screws from top roller frames of conveyor section. One man removes cable connections. Electrician disconnects power and control box. Other crew members are dismantling shakers.

(2) Three men lift off intermediate belt section covers and pile in Room No. 4. They take these in order of dismantling so they can be set up in new heading in same order. (See sketch.) Rollers, stands and spacing angles of each conveyor section are in light, easily handled pieces. One man can carry a roller section and two men to a split cover. Timber trucks are used to wheel pieces down shaker conveyor pan lines in the rooms.

(3) Electric cable for panel is in tailor-made sections. This is handled to new set-up by eight men, who drag sections through No. 6 room.

(4) Tail piece is moved by a shortwall to discharge end of the new belt conveyor heading. Intermediate conveyor sections all have been moved.

(5) Four men have started to move conveyor head section. Belt which has been broken is fed into empty mine cars. Power unit of head section is disconnected. Head section of conveyor is jacked up and lowered from cribbing. The crab hoist rope

is used for slewing head section out of old position onto truck. Power unit is jacked up onto head section. This balances the head section. Another method would be to remove belt conveyor boom section and handle pieces separately. (This would be done in low coal.) Control box is piled onto head section and entire group moves down track, pulled by crab rope. An empty car is inserted between rope and head section to stabilize the direction of pull. Time moving down 300 ft. of track, 21 minutes.

(6) Special intermediate sections (next to drive head) are loaded into empty cars and pulled up 300 ft.,

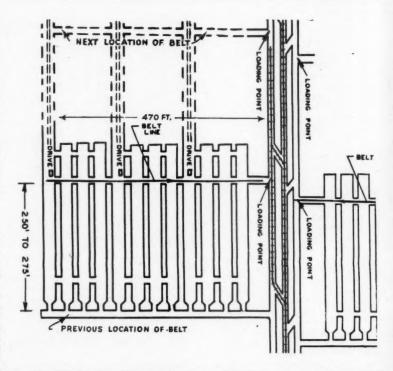
(11) Cars carrying belt were shunted shead of the new position. These are brought back and belting passed through head section and around tail section (25 ft. distant).

(12) Shortwall pulls belting and tail piece ahead.

(13) Eight men set special intermediate sections (adjacent to head section).

(14) Five men finish special intermediate section. Four men feed belt out of cars. One man on shortwall pulling ahead, five men lay stands and rollers and top covers.

(15) New allocation of men. One on shortwall, two guiding tail section,



following movement of head section.

(7) Head section arrives at new position and is slewed into position. A "duck's nest" has previously been shot down and cleaned up. Shortwall machine pulling the tail rope section has arrived. Shortwall stops here as it will be used later.

(8) Head section is jacked up and blocked with cribbing after control box is removed.

(9) Power unit is lowered from head section and attached in position on head section. Head section is anchored down and rollers affixed to head section. Control box hooked up.

(10) Tail piece is 25 ft. in front of head section. Head section is aligned.

two setting stands between top and bottom belt, two inserting bottom rollers, two on each side placing belt covers, two setting top rollers, and three men in belt car.

(16) Belt paid out 470 ft.—time, 1 hour, 26 seconds.

(17) Clamp removed from belt at head section and belt scraper bolted in place.

(18) Crab hoist is moved up by other men in meantime.

(19) Belt is aligned by string on spads and levelled.

A total of 185 man-hours is employed for moving and setting up belt conveyor, shakers, car hoist, blowers and shortwalls.

#### MINE B

#### DEVELOPING AND RETREATING PANEL

This operation is in a seam about 42 in, high; conveyors for heading development and room work discharge onto a 30-in. entry belt which takes the coal to mine cars on the haulagewav.

The mining system, as shown in the accompanying sketch, is room and pillar; the entries are first driven 1,500 ft. to the panel limit and the rooms and pillars are then mined retreating. The belt conveyor is used both for the advance and the retreat: in the development work the first belt set-up is 200 ft. long, which is extended at 300-ft. intervals as the entries are being driven to their maximum length of 1,500 ft. During the retreat the belt is shortened at 300-ft. intervals until it is reduced to a length of 400 ft. at the completion of the panel (See A). The equipment is then moved 1,300 ft. ahead to a developing panel (from A to C on the sketch), using mine cars for transporting the equipment as subsequently described. The work of dismantling and resetting is done with a crew of six men and a foreman, plus three electricians who follow up on the wiring.

#### Dismantling 400 ft. of Conveyor

The belt is cut at a splice on the return side at a point 110 ft. inby from the drive pulley. This break thus occurs in the head section and the loose end of belt is blocked or clamped to the head section. Jacks are dropped at the tail pulley. section of conveyor adjacent to the tail pulley is dismantled into light parts and loaded onto the top belt. The belt is started and, with two men pulling on the belt, the tail pulley is retracted the length of the section of conveyor removed. Belt is then stopped and the procedure repeated until all the sections except the intermediate sections adjacent to head section have been removed. Sections meantime have been taken off of belt as they come back to the head section.

In the meantime the loose end of belt, as it is retracted, is fed or piled into five mine cars (cars 12 ft. long). Power unit of head section is removed and loaded into a mine car; the head section is loaded into another car; the two intermediate sections adjacent to the head section are loaded into two cars and the tail pulley takes up a car. Side frames of conveyor sections, chairs (stands) and rollers, starting boxes and wiring material

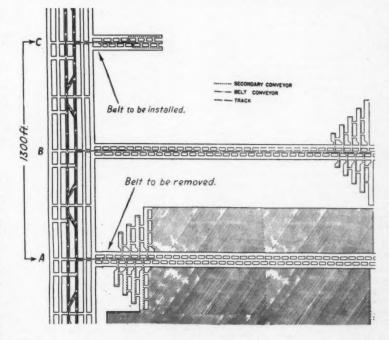
are loaded into separate cars. Time for the work to this point is 6 hours, or 42 man-hours including foreman's time. Equipment cars are trammed to point C.

#### Setting Up 200 ft. of Conveyor

The car carrying the tail pulley is unloaded first and tail pulley is dragged to a point 10 ft. outby the position where it is to be installed. The framework or conveyor sections in dismantled pieces are distributed to the points where they will be set up. The head section is unloaded and dragged into position and aligned. Special intermediate sections adjacent to head section are set up. Power unit is connected on head section and framework built up. The belt cars are next pulled into position and belt threaded into head section and around tail section. Loose end is clamped and tail section dragged ahead with tions are placed on the belt at discharge end and, by reversing belt, are run to the tail pulley and unloaded. Belt is opened up at head section and loose end clamped. New piece of belting is added. Tail pulley is dragged ahead 300 ft. using a cater-pillar-mounted crab reel. The new sections are set up. Splice is made in belt and the tail pulley is tensioned. The belt is aligned by spads in roof. Time required is 311/2 man-hours for the above work, of which 241/2 manhours is installation and 7 man-hours aligning belt. The aligning is usually done after the belt is started and carrying coal.

#### Retracting 300 ft. of Belt Conveyor

The belt is opened at a splice on top belt, 10 ft. back of the head pulley, and the loose end of the top belt



men feeding belt from cars. When 200 ft. of belt is paid off, jacks for tail pulley are set and conveyor sections with rollers are assembled and placed. Belt is tensioned. Time for setting up of above 5 to 6 hours, or 42 man-hours plus one hour additional for three men for wiring and installing starting boxes.

Total time taking down and setting up conveyor, 81 man-hours.

#### Extending Belt Conveyor 300 ft.

The dismantled side frames and rollers necessary for the added secblocked or clamped. Jacks of tail pulley are dropped and the section of conveyor adjacent to the tail pulley is dismantled and the light pieces piled on the belt. Belt is started and two men pull until tail pulley is retracted one section. In like manner other sections are removed one at a time. In the meantime, the belt loose end at the head section is run into cars to be moved to other sections.

Time required to shorten 300 ft. of belt is 241/2 man-hours, including foreman. Splicing 30-in. belt after splice is cut requires 30 minutes for two

men.

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#### MINE C

#### RETREATING PANEL

This operation is in a seam slightly over 5 ft. high; conveyors in the rooms and pillars discharge onto a 30-in. entry belt which takes the coal to mine cars in the haulageway. The belt entry is 15 ft. wide and has a supply track which is used for taking material to the workings and also for transporting the conveyor parts when assembling and dismantling.

The mining method is the block system in which rooms and pillars are mined retreating as shown in the ac-companying sketch. The belt is installed after the entries are driven 1,800 ft. to the panel limit; the first set-up is 1,750 ft. long, which is shortened periodically during the retreat. When the panel is completed, the belt length has been reduced to 360 ft. and this equipment is then moved in mine cars to its new location, with a crew of 10 to 12 men and a foreman. In this mine there are several operating sections developed on different face entries so that there is no regular distance for moving each belt after it finishes a panel; the distance may be 1,500 ft. or it may be a mile.

### Order of Dismantling and Moving

As the panel retreats the conveyor is shortened in 80-ft. sections by taking off 160 ft. of belting at a time. This belting is rolled and loaded onto trucks and the tail section is pulled into place with a locomotive on the supply track. An 80-ft. length of conveyor can be retreated in 45 minutes, which is the interval between the third and first shifts, and this rate is regularly maintained so that the coal produced is not interrupted.

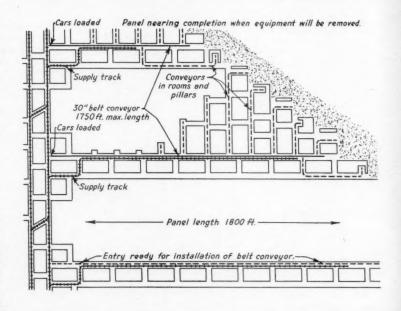
When a panel is finished the conveyor is about 360 ft. long. The belt is broken at a splice at the discharge pulley and the loose end of the return belt is fastened by means of a rope to a locomotive. The conveyor motor is operated and, with the locomotive, the belt is pulled out along the face entry. The belt is usually in 160-ft. lengths, and as each section is pulled out it is unspliced and the sections rolled up and set to one side.

Next all of the belt rollers are removed and loaded onto special trucks located on the supply track. The 8-ft. intermediate sections of rigid type are loaded four to a truck. The tail end and belting are also loaded on the supply trucks.

The head section of the belt conveyor, when in position, is supported by cribbing. The discharge chute or

gate is first dismantled, then 6-in. x 6-in. or 6-in. x 8-in. bars are laid on a sloping angle up against the rib in front of the head section on the face entry. At the time the drive was originally set up an 8-in. x 8-in. cross bar was set up over the drive. A snub rope is fastened to the back of the drive and around this cross bar. Two or three of the front pieces of the crib are next knocked out; the weight of the drive head section kicks the crib out and the head section comes down and lands on two sloping bars previously set. These break and serve to cushion the fall. In case the head section falls too fast, the snub rope is used to slow the descent. The head section is then snaked to the center of the track by means of a to which these chain hoists are attached. As the head section is raised, cribbing is set so that should the hoist slip or fail the unit will drop only a small distance onto the cribbing.

The belt is taken into the new butt entry on the parallel supply track, where it is unrolled along the bottom and lined up accurately on the sight line. Intermediate sections are then placed over the belt and the bottom rollers placed in position. The top rollers are next placed and the belting is then unrolled over the top of the intermediate sections. It should be mentioned again that the belt is about 160-ft. lengths, which are spliced as the work proceeds. Care is taken to keep everything accurately on sights



locomotive. One end of the drive is elevated so that track wheels can be placed on two stub axles that are welded to the head section; the other end of the drive is jacked up and supported on the end of a regular supply truck. The head section is then pulled to the next location with a locomotive.

#### Order of Installing

After arrival at the new location an accurate chalked center line is made the entire length of the new butt entry. The head section is hoisted up into position with ratchet-type chain hoists. Three such hoists are used, one fastened to the front of the drive head and two at the rear of the head section. Two sets of 8-in. x 8-in. cross bars are set over the drive location

and also to see that the intermediate sections are kept level. Finally the belt is tensioned and aligned.

A fairly close estimate of the manhours required to dismantle and set up 1,800 ft. belt conveyor length is 700 man-hours, or 10 men ten 7-hour shifts. This work would include drilling, shooting and loading the rock for the "duck's nest" and cleaning up the butt entry preparatory for installation of the belt conveyor. A panel yields between 100,000 and 110,000 tops of coal.

Note: The subcommittee appointed to make a special study on moving and resetting belt conveyors is submitting the foregoing three reports as the first of a series, to be followed later by descriptions of other typical installations.



As Viewed by A. W. Dickinson of the American Mining Congress

OIL and sweat on the part of the "wheel-horse" Senators and Representatives and their hard-worked staffs who handle the departmental and Federal agency appropriation bills made possible the adjournment of the Congress on the night of July 8. Unless some totally unexpected emergency arises the Senate and House will not reconvene until September 14 although these bodies may be called back at any time by joint action of Democratic or of Republican leaders of the two Houses, or by the Vice President and the Speaker. Even before the adjournment a great many Representatives and some Senators had returned to their home districts and states, but at the end of July many are filtering back into Washington after having sounded the sentiment of their constituents, and are devoting their time to intensive work in preparation for the fall and winter sessions which will inevitably be followed by the political campaign of 1944.

#### Soldier-Miner

Hope of recruiting miners for nonferrous properties from the Pacific Coast war industries, Mexico and certain other sources diminished during the first weeks of July. At the mines, mills and smelters, the shortage of over 6,000 men continued and repeated representations to the War Department through the War Production Board and War Manpower Commission finally brought action on July 20 when the Department acting under instruction of the Office of War Mobilization authorized the release from active military service of 4,500 men whose previous experience and skills qualify them for employment in the mining of copper, zinc and molybdenum. As matters now stand, none of these soldier-miners will be released for production of other metals.

The Army, the War Production Board and War Manpower Commis\*\*\*\*\*

#### Washington Highlights

Congressmen: Filtering back to Washington.

Soldiers: 4,500 coming back to mines.

Revenue: Higher rates, sales tax, in the wind.

Renegotiation: Only 25,000 companies subject to it.

Coal Wages: Big hearing in August. Guffey Act: Dead.

Silver: Fabricators get theirs.

Access Roads: More funds available.

Stockpiling: Mining industry supports legislation for future security.

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sion have agreed that the soldiers will be released only to mines of highest productivity located in areas of critical labor shortages so that they will make the maximum contribution toward increased production of these particularly desired metals. The War Department's release makes a strong statement in behalf of men who work in the production of essential metals and this public declaration will undoubtedly result in keeping many of the younger men at their work in the mines when otherwise they would join the armed forces.

Full charge of assembling the soldier-miners, who will come from units stationed west of the Mississippi River, has been delegated to the Commanding General of the Ninth Service Command at Fort Douglas, Utah. The men will go to their new work as civilians and the Army will exercise

no control over their wages, working conditions or collective bargaining relationship. They will not be accountable to the Army for their actions in or out of the mines. The soldiers who volunteer for service in the mines will be released to the Enlisted Reserve Corps after their qualifications have been established by the United States Employment Service and a job is assured them in one of the high-priority mines. They will be assembled at Fort Douglas and representatives from the selected employers will interview them; thereafter transportation arrangements will be made to the location of employment.

The Army will recall to active duty any man who fails to continue to work in approved mines. In the selection of the soldiers to be released, commanding officers are to give priority to men who have been in the Army less than three months. This is to insure maximum retention within the Army of men who have completed their basic training; no releases will be granted to men in organizations alerted for overseas duty.

The Army and the employing mining companies have learned much from their experience in the previous furloughing of soldiers for work in the mines and it is certain that the present arrangement will be carried out in a much more orderly and effective manner.

#### Tax Plans

Discussion of additional revenues to be sought this fall is changing from the \$12 billion previously set forth by the Treasury to \$6 billion. Apparently when the Committee on Ways and Means meets on September 8, revenue raising plans which will be advanced by the Treasury and the Joint Committee on Internal Revenue Taxation will include a compulsory savings plan, compulsory joint returns for married couples, increased excises on liquors and luxuries, and

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suggestions concerning an excess profits tax on individuals, higher individual surtaxes, and a retail sales tax

There are serious administrative difficulties in the collection of an excess profits tax on individuals. A retail sales tax will not bring the desired amount of revenue if the measure is loaded down with exemptions but it is about the only remaining source of quick revenues.

Treasury General Counsel Randolph Paul has stated that some additional revenue can be obtained from corporate earnings if the excess profits tax relief provisions are further improved. Paul emphasized that relief provisions do not necessarily reduce revenue but through correcting injustices make it possible to increase the total tax levy which corporations can bear.

The Tax Committee of the American Mining Congress met for two days late in June and will meet again in September shortly after the Committee on Ways and Means resumes its work.

#### Renegotiation and Termination

Just before adjournment an amendment by Representative Francis Case, of South Dakota, placed as a rider on the \$71 billion Military Establishment Appropriation Bill, extended the regular procedure for the renegotiation of contracts to the Defense Plant Corporation, the Metals Reserve Company, the Defense Supplies Corporation and the Rubber Reserve Company—all are RFC subsidiaries.

A Ways and Means Subcommittee on Renegotiation of Contracts has postponed action on several pending measures until September when the members will review testimony which had previously been taken by the Ways and Means and Finance Committees and also by a subcommittee of the House Committee on Naval Affairs. Ways and Means Subcommittee Chairman Wesley Disney, of Oklahoma, advocates that definite standards, to be observed by all departments conducting renegotiation, should be placed in the law to minimize the personal equations in determining the basis for renegotiation. The chairman, who has conferred with OES Director Fred M. Vinson and representatives of the Treasury, indicates that the following issues will be considered by the subcommittee: allowances for post-war reserves; depreciation of plants and facilities; conducting of renegotiation before or after taxes; and the general subject of amortization of values of manufacturing properties.

Meanwhile, war contractors have been requested by the Price Adjustment Boards to execute a new twopage form calling for certain operating and financial data in order that there may be a reduction in the num-

ber of companies with which renegotiation proceedings will have to be initiated. The boards estimate that the total number of war contractors actually subject to renegotiation does not greatly exceed 25.000.

not greatly exceed 25,000.

The matter of a "termination" clause in war contracts is receiving preferred attention by many committees and associations and careful scrutiny is being given to bills introduced by Senator James E. Murray, of Montana, and Representative Andrew J. May, of Kentucky, which would provide procedure on this extremely important subject.

#### Coal Wage Settlement

Following the resumption of production at the coal mines after a third national shutdown over the wage controversy, Secretary Ickes appointed as his Deputy Federal Coal Mines Administrator Carl E. Newton, president of the Chesapeake and Ohio Railroad. The Secretary also appointed Thomas J. Thomas as Director of Production in the Office of Mine Operation. Since taking office, Mr. Newton has endeavored to assure the coal mine owners that the Government will return their properties to them as soon as possible.

As the days and weeks went by, the North and South Appalachian coal operators called upon the War Labor Board and upon the President to compel the mine workers, representatives to negotiate and sign a wage agreement. The President stated publicly that he doubted that he had the power to compel John L. Lewis to make an agreement. At this point, on July 22, the Illinois Coal Operators made a wage agreement with the mine workers predicated upon the grant of an increase of coal prices by the OPA. The agreement called for an 8-hour instead of 7-hour shift, the additional hour to be paid for at \$1.50. Included also was a travel pay or portal-toportal payment of \$1.25 per shift. This with the approximately 25c granted by the previous order of WLB for lamp rentals, tools, vacation pay, etc., makes a total increase in takehome pay of approximately \$3 per

Promptly John L. Lewis requested a hearing before the War Labor Board on this settlement and the date set was August 3. Such a settlement would do a grave injustice to many coal mine operations throughout the country but it is common talk that the Board will be tempted to approve some form of travel-time settlement inasmuch as the Board's directive order of June 18 indicated that the miners and operators might settle their differences over the portal-toportal issue either by court action under the Wage and Hour Law or by agreement subject to the Board's approval. This the Illinois operators and mine workers allege they have

done by an out-of-court settlement extending back to the effective date of the Wage-Hour Act, October 24, 1938.

The operators and miners of the Pennsylvania anthracite region have continued to negotiate but at the present time everyone realizes that much depends upon the action of the War Labor Board after hearing the presentation of the operators and miners of Illinois.

#### No Guffey Act

Action at the close of the session by the Committee on Ways and Means and the Committee on Rules sealed the fate of the National Bituminous Coal Act.

Besides Secretary Ickes and his staff, the proponents of extension of the act included George W. Reed, of the Peabody Coal Company, and L. E. Woods, of the Crystal Block Mining Company, coupled with Consumers' Counsel Luther Harr and the United Mine Workers representative, Percy Tetlow. Opposing the bill were Tyre Taylor, general counsel, Southern States Industrial Council; Horace R. Lamb, counsel for the Associated Industries of New York State; James A. Emery, National Association of Manufacturers.

Coal producers appearing in opposition were E. M. Douthat, vice president, Sinclair Coal Company, Kansas City, Mo.; P. E. Lundblad, vice president and treasurer, Central Indiana Coal Company; R. E. Snoberger, executive vice president, Binkley Coal Company; R. H. Sherwood, president, Central Indiana Coal Company; H. W. Hawthorne, vice president, Pocahontas Fuel Company; and Rolla D. Campbell, general counsel, Island Creek Coal Company.

A vote of 13-11 stopped extension of the act in the Ways and Means Committee. Thereupon the proponents battled for the approval of a resolution extending the act only to January 1, 1944. This resolution received a cold-shoulder in the Committee on Rules and the act will now expire at midnight, August 23. Immediately Senator Guffey, of Pennsylvania, and Representative Jennings Randolph, of West Virginia, introduced bills which would recreate the Guffey Act, but favorable action in the present Congress is regarded as extremely doubtful.

#### Silver for Industry

At the end of June the Green silver bill which would make silver held or owned by the United States available at 71.11c per ounce for manufacturing purposes—including but not limited to the making of munitions of war and the supplying of civilian needs—had passed the Senate and was before the House Committee on Ways and Means. Other bills before this committee would have repealed the Silver Purchase Act of 1934 and there

(Continued on page 60)

# ERSONALS.

Announcement has been made by E. B. Greene, president of Cleveland Cliffs Iron Company, of the retirement of S. R. Elliott, who has been connected with the company since 1898 and manager of the iron ore mines in the Lake Superior district for



S. R. ELLIOTT

the past 16 years. Mr. Elliott is succeeded by the assistant manager, Chas. J. Stakel, who has been with the company since 1905.

In addition to the promotion of Mr. Stakel the following other advancements have been made by the management, effective July 15:

Walter A. Sterling, of Hibbing, Minn., now serving as district superintendent on the Mesabi range, is promoted to assistant manager for Minnesota; C. W. Allen, superintendent of the new Mather mine, is made assistant manager of the Michigan mines; F. J. Haller, now serving as superintendent at the Lloyd and Spies-Virgil mines, becomes superintendent at the Mather property; Onni Marjama, assistant superintendent of the Athens and Negaunee mines, takes Mr. Haller's place at the Lloyd and Spies-Virgil; William R. Atkins, of the engineering department, becomes assistant superintendent of the Negaunee and Athens mines.

L. French Workman has been appointed general superintendent of the Lorado Coal Mining Co., Lorado, W. Va.

E. A. Berry, treasurer of the Koppers Company, has been elected a director of the Pittsburgh Control of the Controllers Institute of America.

John V. N. Dorr, president of the Dorr Company, received the honorary degree of Doctor of Science from Columbia University on June 1.

Promotion of three officials is announced by Halfdan Lee, president of Eastern Gas and Fuel Associates; W. H. Earle, vice president, Philadelphia Coke Company, Philadelphia, has been elected president; Hugh MacArthur, vice president, The Connecticut Coke Company, New Haven, Conn., has been elected president. Mr. Earle and Mr. MacArthur succeed Angus MacArthur, deceased, who was president of Philadelphia Coke and Connecticut Coke

H. B. Baird, vice president of Eastern Gas and Fuel in charge of sales for its Koppers Coal Division, has been elected a trustee of Eastern Gas and Fuel. He will continue in his present position.

Cornelius F. Kelley, chairman of the board of directors of the Anaconda Copper Mining Company, announced that at the organization meeting of the board of directors following the stockholders' meeting, the incumbent executive officers of the company were reelected and in addition William Harold Hoover, general counsel of the company, was elected to the position of vice president and general counsel. Mr. Hoover is very well known in Butte, where he made his home for a number of years. From 1913 to 1936 he practiced law at Great Falls, becoming western general counsel of the Anaconda company in 1936 and general counsel last year.

Director Arthur S. Knoizen of WPB's Mining Division recently announced the appointment of John L. G. Weysser as Chief of the Coal Section. Mr. Weysser, formerly Deputy Chief of the section, has been connected with the division since November, 1941, and previously had been assistant pro-



J. L. G. WEYSSER

fessor of mining engineering at the University of Illinois. During the past few months he has spent most of his time on a special field assignment for the director.

H. F. Hebley, for the past four years product control manager in charge of coal quality for the Pittsburgh Coal Company, has been appointed director of research. Mr. Hebley will conduct research for the Pittsburgh Coal Company directed to-



H. F. HEBLEY

ward long-range planning on mining, coal utilization, economics, marketing and improvement of quality.

Mr. Hebley received his general and technical education in New Zealand. This was followed by broad practical engineering experience in metal and coal mines in Arizona, Utah and New Mexico. For 16 years he was associated with Allen and Garcia, consulting engineers. During this period he spent about two years on the American commission to the coal industry of the U. S. S. R. He recently returned to the U. S. A. after completing a special mission to Australia for the Board of Economic Warfare.

Harry E. Krumlauf and W. C. Polhinghorne of the staff of the Michigan College of Mines and Technology are engaged in some engineering work for the Calumet and Hecla Consolidated Copper Co. at Calumet.

Dr. Corliss R. Kinney, formerly professor of chemistry at the University of Utah, has been appointed professor of fuel technology in the School of Mineral Industries at the Pennsylvania State College, according to an announcement by President Ralph D. Hetzel.

Dr. Kinney has done considerable work on the cracking of Utah coal tar oils and tar acids. He served as a member of the executive committee of the Utah Conservation and Research Foundation which investigated the low temperature carbonization of Utah coals.

In addition to teaching courses in fuel technology, Dr. Kinney will be in charge of the research program at Penn State on the non-fuel uses of bituminous coal.

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Milton H. Fies, vice president of the DeBardeleben Coal Corporation, has been appointed Alabama district chair-



MILTON FIES

man for the Committee for Economic Development. The district under his jurisdiction includes the industrial area in 17 counties in north central Alabama.

M. C. Haas, formerly general superintendent of the Cotopaxi Exploration Company, Latacunga, Ecuador, has been appointed resident manager of the company's operations.

John E. Organ, who has been on the Mining Division staff of WPB since early 1942, and for the past six months has been handling stripping work in the Coal Section, has resigned to reenter private practice as a geological consultant on coal stripping.

R. D. Leisk, general manager of the Sunshine Mining Company, was elected chairman of the Columbia section of the A. I. M. E. at a recent meeting of that organization, while P. J. Shenon, geologist in charge of the Government's regional geological office in Spokane, was elected vice chairman and Walter Melrose as assistant secretary.

The board of directors of Cabin Creek Consolidated Sales Company recently announced the election of Colonel C. R. Moriarty as chairman of the board, Maynard L. Patton as president, Wistar H. Marting and Jack H. Price as vice presidents, and John W. Hicks as treasurer. All are located at the general offices, Carew Tower, Cincinnati, Ohio.

O. A. Rockwell, formerly with the Sunrise Mining Company at Sunrise, Wyo., has taken a position as efficiency engineer with the Calumet and Hecla Consolidated Copper Co. at Calumet.

Walter J. Tuohy, vice president of the C. & O. Railway Co., has been named by Secretary Ickes to be Associate Deputy Coal Mines Administrator. Mr. Tuohy's offices will be in Washington where he will work closely with Deputy Coal Mines Administra-

tor Carl E. Newton in the problems of Government operation of the coal mines.

David E. Flowers who has been with the Differential Steel Car Company for the past 14 years has joined the staff of the Hanna Stoker Company as assistant to the president and sales manager. R. D. Flowers has been appointed to take the place of his brother with the Differential Steel Car Company.

Dexter A. Tutein, in charge of iron ore, coke and pig iron prices for the OPA, recently made a trip through the Michigan iron ranges.

F. S. Mulock, vice president and general manager of the United States Smelting, Refining & Mining Co., Salt Lake City, Utah, recently announced that Leland A. Walker, formerly mine superintendent at Bingham, before coming to Salt Lake City as mine manager, has been appointed manager on mines for all the Utah Metal Mine operations of the company. T. P. Billings has been appointed assistant general manager of all the company's metal mines. J. D. Harlan is vice president and general manager of mines for the company.

Samuel H. Williston, vice president, Horse Heaven Mines, Inc., and Cordero Mining Co., has been made a member of the Oregon State Board of Geology and Mineral Industry.

S. E. Sullivan, Chisholm, Minn., formerly with the Oliver Iron Mining Co., is now with the Iron Mining Department of the Lone Star Steel Company in Texas.

Jerry W. Woomer recently severed his connections as general manager of mines for W. H. Warner and Company and is now engaged as a mining engineering consultant with offices in the Wheeling Bank and Trust Building, Wheeling, W. Va. In this work Mr. Woomer will be affiliated with Messrs. Paul Weir, Clayton G. Ball and George C. McFadden, consultants, with offices in Chicago.

B. Arnold Workman has been appointed assistant general superintendent of the Lorado Coal Mining Company, Lorado, W. Va.

J. C. Costello has been appointed manager of Atlas Powder Company's Giant Division sales offices with head-quarters at San Francisco, Calif. Mr. Costello succeeds Weston G. Frome, who has become assistant general manager of the Explosives Department, located at Wilmington, Del.

Worthington Pump and Machinery Corporation announces that Marcello A. King has joined the organization as executive engineer of its Moore Steam Turbine Division, Wellsville, N. Y., in charge of design, research, testing and service.

#### — Obituaries —

Forrest Gains Hamrick, 63, comptroller of the American Smelting and Refining Company since 1928, died on July 9 at his home in Ridgewood, N. J. He was graduated from Wake Forest College, Wake Forest, N. C., in 1902 and had been with the American Smelting and Refining Company since 1907.

Mr. Hamrick was chairman of the committee on Federal taxes of the Controllers' Institute of America and was a director of the Citizens' First National Bank of Ridgewood. He was vice chairman of the Tax Committee, American Mining Congress.

Louis D. Mills, 65, vice president of The Merrill Company, died on July 16, at Palo Alto Hospital, Palo Alto, Calif., after an illness of several weeks. Mr. Mills was an internationally known metallurgical engineer, specializing in the metallurgy of gold and silver.

Dr. H. B. Meller, 65, formerly managing director of Industrial Hygiene Foundation and a world authority on air pollution and smoke prevention, died in a Pittsburgh hospital on June 27.

Formerly Dean of the School of Mines at the University of Pittsburgh, Dr. Meller had headed Mellon Institute's air pollution investigation since 1923. He became managing director of Industrial Hygiene Foundation when the organization was formed in 1935 and directed the Foundation until last September when failing health forced him to relinquish active management. He had continued as a consultant.

J. D. Snyder, division manager, Consolidation Coal Company, died in Jenkins, Ky., June 15 after a short illness. He had been with Consolidation since 1904.

Charles Earl, 74, vice president, general counsel and a director of the American Smelting & Refining Company, died recently at his home in Great Neck, L. I., after a brief illness. He was born in Cambridge, Mass., April 21, 1869.

Mr. Earl was president of the Mother Lode Coalition Mines Company, secretary of the Pacific Tin Consolidated Corporation, a director of the General Cable Corporation, and trustee of the Guggenheim Foundation.



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#### WEST VIRGINIA

>>> A \$10,000 mining concern received a charter early in July from the Secretary of State to operate in Clay District of Harrison County. The Winchester Coal Co., incorporated by Charles E. Potter, Ora E. Potter, and Lloyd D. Brown, all of Fairmont, will have its principal offices in Fairmont.

» » The \$50 vacation bonus, or token, increased from \$20 paid in 1942, seems to have stirred up a hornet's nest of opinions as to whom it applies. Nearly every authority, up to the President, state and Federal, has issued some form of directive or interpretation with respect to that remuneration to wage earners in our coal industry.

The War Labor Board issued a directive which, in effect, continued in force the agreement under which operators and miners had been working up to April 1, 1943. There were changes directed by the WLB which the operators accepted without dispute, one of which was the increase from \$20 to \$50 as vacation pay. The union did not agree to the general terms of the WLB order, but they did accept the increased vacation token without question or any statement of approval.

In the contract which expired March 31, 1943, it was assumed the payment of a vacation token would be made to any worker who had been continuously in the employ of one company since June 1, 1942, to May 31, 1943. The amount under that contract was \$20, but that, as shown, was changed to \$50 without a stipulation that any pe-

riod other than June 1 and May 31 would be in evidence. The directive followed the term, but not the amount, but did say the "increased vacation payment shall be applicable to mine workers who entered the armed forces during the last year."

Apparently the War Labor Board concluded their statement was sufficiently clear to by-pass any confusion, but they did not clear up all of the situations developed by the order. The Board's order was to the effect that a worker entering the armed services during the year would be entitled to the vacation pay if the contract features had been observed, i. e., the employment had been continuous from June 1, 1942, to the date the entrance into the armed forces began. This is interpreted here to mean that an employe working on June 1 and quits,

say on June 30, and accepts employment elsewhere on July 1 or later before entering the service would not be entitled to the vacation pay from either the first or second employer.

Another situation is that an employe working for a company June 1 going directly to the armed service later would be entitled to the vacation pay from that company. Subsequently, he is released and returns to work for another company, then later recalled to the services is only entitled to the one vacation bonus or token, chargeable to the June 1 employer. There are other situations that direct the bonus, but only one token payment can apply to an individual.

It is generally believed, too, that the vacation bonus should be subject only to the Victory and Old Age Benefit taxes, but the Treasury Department sticks its oar in here and cites Example 3 under Chapter I, Subchapter D-TD 5277, as making the "withholding" tax the proper tax to apply.

"Example 3. An employer ordinarily pays his employes on the basis of a weekly payroll period and, in addition, pays them a bonus every three months. On July 10, 1943, the employer pays an employe wages for the weekly payroll



About 6,000 tons of anthracite are produced each day from the Glen Burn Colliery of the M. A. Hanna Company, near Shamokin, Pa.

period beginning July 4, and a bonus for the three months ending June 30, 1943. The bonus, as well as the weekly wage, is subject to withholding under the provisions of Section 1622."

Likewise, Example 2 indicates a similar resolve, but Examples 4 and 5 puts it back into the original setup of "Victory Tax" and "Old Age Benefit."

Example 4 quoted:

"Example 4. On June 26, 1943, the employe is paid his regular weekly wage for the week ending June 26, and is also paid advance vacation pay for the weeks beginning June 27 and July 4. Each of these payments is subject to withholding under the Victory Tax provisions (Section 466, Part II, Subchapter D, Chapter 1, of the Internal Revenue Code), and not under the provisions of Section 1622 of the Internal Revenue Code."

#### and Example 5:

"Example 5. On July 3, 1943, wages are paid to an employe for a weekly payroll period beginning June 27, 1943. These wages are subject to withholding under the Victory Tax provisions (Section 466, Part II, Subchapter D, Chapter 1 of the Internal Revenue Code), and not under the provisions of Section 1622."

definitely make the payment of the bonus an affair related to the previous year and therefore subject only to the taxes applicable then even if paid after July 1.

A further important statement bearing upon the subject is contained in the paragraph that follows:

"Wages are constructively paid within the meaning of this section when they are credited to the account of or set apart for an employe so that they may be drawn upon by him at any time although not then actually reduced to possession. To constitute payment in such a case the wages must be credited or set apart to the employe without any substantial limitation or restriction as to the time or manner of payment or condition upon which payment is to be made, and must be made available to him so that they may be drawn upon at any time, and their payment brought within his control and disposition."

Most of the Kanawha district companies are well advised concerning these tax applications and so far as we can learn only one company has interpreted the tax regulation to mean the "withholding" (effective July 1) as being applicable. Their argument, or interpretation, is not available for presentation here.

#### MARYLAND

» » The annual report of the Maryland Bureau of Mines for 1942 shows that Allegany County employed 1,084 miners, 132 drivers (this includes motormen, brakemen, etc.), 166 inside laborers, and 144 outside employes, making a total of 1,526 men. The production of coal for that year was 1,167,916 tons. This shows a production of 1,077 tons per miner employed during this period. Garrett County employed 655 miners, 121 drivers (this includes motormen, brake-

men, etc.), 95 inside laborers, and 110 outside employes, making a total of 981 men. The production of coal for the year 1942 was 848,502 tons. This shows a production of 1,295 tons for each miner employed during this period.

In 1942 the fire clay mines in Allegany County employed 122 miners, 13 drivers, 29 inside laborers and 23 outside employes, making a total of 187 men. The production of clay during the year 1942 was 119,464 net tons.

Coal shipments over the Cumberland and Pennsylvania Railroad, which traverses the center of the George's Creek coal field, amounted to 619,516 tons. There were 912,330 tons produced by mines located on the Western Maryland Railway in the Western Maryland coal field during 1942. Of this total, 244,975 tons originated in the George's Creek District. During the same period the mines located on the Baltimore and Ohio Railroad in Maryland made coal shipments amounting to 70,758 tons.

#### PENNSYLVANIA

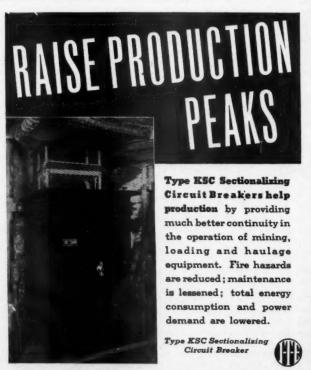
» » Because it now has the largest staff in its history, the Anthracite Industries' laboratory at Primos,

Pa., has been enabled still further to expand its long-established program of development and cooperation with heating equipment manufacturers, according to Frank W. Earnest, Jr., president of that research and educational organization of the hard-coal industry. Other important activities include the inauguration of an intensive fuel conservation campaign among consumers and the completion of a stoker service survey.

More than 40 fuel engineers and technicians are now engaged in research on anthracite combustion and heat transfer methods, systematic testing and improvement of anthracite-burning equipment of all types, and engineering analyses of data from all sources. This work will help cooperating manufacturers to design and produce more efficient and attractive coal-fired heating and cooking equipment.

#### KENTUCKY

» » A company known as the Barrowman Coal Corporation, Elkhorn City, was recently chartered with a capitalization at \$25,000 for the operation of coal mines and properties. David Barrowman, William Earl Barrowman and Annie Barrowman Price of Pikeville, Ky., were the incorporators.



Representatives in Principal Mining Areas

CIRCUIT BREAKER CO.

PHILADELPHIA, PA.

# Federal Coal Mine Inspection—1944 As Reported by U. S. Bureau of Mines

Recognized as an important factor in reducing coal mine injuries in the United States and aiding the uninterrupted production of wartime fuel, the Federal coal mine inspection program began a new fiscal year with plans for even greater service to the industry, Secretary of the Interior Harold L. Ickes announced on July 23.

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While coal mine injuries claimed only 4 percent more lives in 1942, accidents in industry as a whole rose an estimated 11 percent, the Secretary said. This record was achieved in the face of increasing demands for coal, the loss of trained workers to the Army and to factories and shipyards, and other adverse conditions affecting the industry.

Congress included in the 1944 Interior Appropriation Bill the sum of \$722,880—about \$6,000 less than last year—to continue the inspection program through the Bureau of Mines, Secretary of Ickes stated, and it is expected that approximately 1,700 mines will be examined during the fiscal year. Reinspection of many mines as an accurate check on improvements also is scheduled.

More than 1,100 of the larger coal mines were inspected in the 12 months just ended, bringing the total to 1,549 visited since the Bureau of Mines in spectors actually went into the field at the beginning of 1942, Dr. R. R. Sayers, Director of the Bureau, informed Secretary Ickes. The Coal Mine Inspection Act was passed in May, 1941, but the selecting and training of the first group of inspectors was not completed until December of the same year. It was August, 1942, before the final group of men entered the field.

The mines inspected thus far represent about 67 percent of the Nation's production of bituminous and anthracite coal, and approximately 66 percent of the total number of men engaged in coal mining, Dr. Sayers stated

The Bureau's coal mine inspection work is confined almost wholly to investigative, recommendatory and educational activities, as the Bureau does not have enforcement powers. Close cooperation with state mining departments and their agents is maintained. Detailed and comprehensive reports, prepared after exhaustive examinations of the mines by one or more of the 117 inspectors and electrical and explosives engineers, are submitted to the operator, the mine workers organizations, and state mining agencies and may be read by the public at Bureau of Mines offices.

Although the 1942 accident record was better than those of years prior

to the coal mine inspection program, the annual toll of life and limb in coal mines still is too large to permit a relaxation of effort either in the Federal inspection work or on the part of operators and miners, Secretary Ickes commented.

Veteran mining men, the inspectors were appointed under civil service status and all underwent a "refresher" course at the Bureau of Mines district headquarters at Pittsburgh before entering the field. Many of them came from the operating and engineering departments of coal-mining companies. Some had been employed as state coalmine inspectors, and all had five years or more of underground experience.

Thoroughness characterizes work of the inspectors whose general duties are to aid both operators and workers by measuring the degree of safety in each mine against a yardstick of some 600 tentative standards drawn from more than three decades of Bureau of Mines experience in the field and laboratory. Based on findings, a preliminary report is prepared by the inspector and posted at the mine portal within a few days after completion of the inspection. This is followed by a detailed report presenting an over-all picture of the mine and setting forth recommendations in full; this is forwarded after completion of the analyses of gases, dusts, etc., sampled in the mine to ascertain the hazard from dust, gases, etc., in each mine.

Hundreds of major improvements already have been effected in coal mines in response to these recommendations, surpassing even the most optimistic forecasts of the program's sponsors. These improvements, for which the ground work often has been laid through years of effort by state coal-mine inspection agencies, include better ventilation, haulage, roof control, and dust reduction or control, the safeguarding of electricity and electrically operated equipment, the elimination of water hazards, and the adoption of other safety measures.

The production of both bituminous and anthracite coal continues to climb although the production of neither has yet reached the levels which had been maintained for many weeks prior to the general strike in the coal mines, it was announced late in July by the Department of the Interior.

The Bituminous Coal Division estimated the production of bituminous coal for the week ended July 17 at 11,860,000 tons as compared with a revised estimated production of 11,-170,000 tons for the week ended July 10.

Prior to the general strike the weekly production of bituminous coal was consistently above the 12,000,000-ton level and the production of anthracite was at or above 1,350,000 tons.



There's going to be one—a brisk free-for-all struggle for orders—with no holds barred.

There's no doubt about the winner—Prepared Coal! Coal thoroughly cleaned, accurately sized—coal that the smart buyers want, and will pay a higher price to get.

Make sure right now that your coal will hold its own in that tussle—will get that top price.

You can guarantee your future. You can arrange now for an adequate preparation plant custom-fitted to your particular needs. A survey and plan, drawn up by trained specialists, costs you nothing—not a penny nor an obligation. Ask us about it—and now's the time.



JOURNAL

#### Central



#### States

#### **MISSOURI**

» » The Park City Consolidated Mines Company is presently engaged in opening lead-zinc ore properties at Fredericktown, Mo., and in the erection of a milling plant. The corporation suspended mining operations on their Park City, Utah, properties in August, 1942. Equipment for the new milling plant has been obtained with only a minimum of delay and it is scheduled to go into operation during September.

#### ARKANSAS

» » An examination of the Humphreys and Caddo quicksilver mines, Clark County, Ark., was made in the spring and summer of 1943 by A. C. Waters, J. M. Nelson, R. E. Brown and G. A. Thompson, of the Geological Survey, United States Department of the Interior. A geologic map of the area surrounding the mines, level maps, and maps of sections of the mines have been prepared. A limited number of photostat copies of the maps and a mimeographed explanatory text to accompany them may be obtained by those directly interested. Maps of other mines in the Arkansas quicksilver district will be issued as the need arises. Requests should be addressed to the Director, Geological Survey, Washington, D. C.

#### MICHIGAN

» » The Davidson No. 2 Mine of the of the Pittsburgh Coke and Iron Co. was closed in April of this year due to exhaustion of the ore. The mine has been in operation 32 years and in that time produced 2,177,000 tons of iron ore. The mine has been in charge of Rudolph Ericson during its entire life and Victor Fredlund has been mining captain since 1912.

#### TEXAS

» » The Texas Gulf Sulphur Co. has been awarded a White Star to add to the Army-Navy "E" Production Award Flag it received on November 2, 1942. Announcement of this second award was made on June 26 by Under Secretary of War Robert P. Patterson in a letter addressed to the men and women of the Newgulf plant and the Galveston loading plant

of the company in Texas. The award was made for meritorious services on the production front. It indicates that during the period since the receipt of the "E" Award high standards have been maintained in the quality and quantity of production of sulphur.

## "Sentinels of Safety" Awards for 1942 Announced

ROPHIES, known as the "Sentinels of Safety," have been awarded to six mining and quarrying companies for outstanding records in preventing accidents during 1942, according to an announcement by Dr. R. R. Sayers, Director of the Bureau of Mines. Donated annually by the Explosives Engineer magazine, the trophies are given in the national safety competition to each of the leaders in underground bituminous coal

mining, underground anthracite mining in Pennsylvania, underground metal mining, underground nonmetallic mineral mining, open-cut mining of all types, and stone-quarrying.

The anthracite-mine group trophy was won by the Stockton mine, operated by the Jeddo-Highland Coal Co., at Stockton, Luzerne County, Pa. Its record for 1942 showed 194,897 manhours of work with 20 lost-time accidents and 170 days of disability.

The Knife River mine, at Beulah, Mercer County, N. Dak., won the bituminous coal mine group trophy. This mine was operated by the Knife River Coal Mining Co. and during the year the employes worked 250,531 man-hours with 1 lost-time accident that caused 22 days of disability.

The winner of the trophy in the metal-mine group was the Boyd copper-sulphide mine at Ducktown, Polk County, Tenn., operated by the Tennessee Copper Co., which worked 155,441 man-hours without a lost-time accident.

#### **NORTH DAKOTA**

» » The State of North Dakota in 1942 shipped a total of 1,707,-847 tons of lignite coal from 204 mines, of which 114 were strip mines and 90 were underground mines.

# SIMPLICITY GYRATING SCREENS

are operating 24 hours daily in many of the coal and metal mines using them today. To assist in keeping these units operating with a minimum of lost time, the Simplicity Engineering Company has arranged with the C.A.P. for Courier Service, so that urgently needed parts can be quickly flown to their destination. Another example of providing the fastest service available.



SIMPLICITY ENGINEERING COMPANY DURAND, MICHIGAN

# Sullivan Machinery Co. Awarded Army-Navy "E"

THE ARMY-NAVY "E" award for production excellence was recently made to the employes of the Sullivan Machinery Company, Michigan City plant, in an impressive ceremony.

Rear Admiral H. G. Taylor, U. S. Navy, presented the "E" flag to F. W. Copeland, Sullivan Machinery Company president. Colonel Martin H. Ray, U. S. Army, presented "token E" pins to veteran employes of the company. Arthur S. Knoizen, Director, Mining Equipment Division of the War Production Board, spoke briefly about the remarkable production record established by the Sullivan employes. Nearly 1,500 people attended the ceremony.

# Fluorspar Miners Welcome Price Increase

GENERAL increases in the maximum prices of fluorspar, amounting to approximately \$5 per ton, were announced July 1 by OPA. Wage increases for fluorspar workers in the Illinois-Kentucky districts were made by the War Labor Board so as to keep miners from moving to higher-paying jobs in war plants.



Rear Admiral H. G. Taylor, U.S.N. and F. W. Copeland, president, Sulliven Machinery Co., holding the Army-Navy "E" flag

Metallurgical grades of fluorspar were increased to from \$30 to \$33 per ton as compared with the former ceilings of from \$25 to \$28 per ton. The increases are generally effective for 60 days from July 1, and sales after that time may call for new prices only upon approval of the WPB. Acid and ceramic grade are set at \$37 per ton.

Fluorspar is an important material in the manufacture of aluminum, as well as its use as a flux in steel production. The WPB is seeking to increase output from present fluorspar operations as well as to aid producers develop new mining areas.



URNAL



A 35-ton side dump trailer in one of the Minnesota open pit iron mines hauled by a Walter 4-point positive drive tractor of 300 hp.

# Minnesota Mines Supplied 70 Percent of Total 1942 Iron Ore Output

THE enormous demand for raw materials by a wartime steel industry in 1942 resulted in a record year in iron ore mining. According to the Bureau of Mines, United States Department of the Interior, a total of 118,189,336 short tons of usable iron

ore was produced during the year. United States iron mines produced a total of 141,710,416 tons of crude iron ore during 1942 and shipments amounted to 142,010,365 tons. Of this quantity, 49,936,613 tons were shipped to beneficiation plants, and 92,073,752 tons were shipped direct to consumers. A total of 25,917,959 tons of beneficiated ore was produced at milling plants in addition to 720,172 tons of

by-product cinder and sinter from the pyrite industry. Output in 1942 came from 252 mines, of which 35 mined over 1,000,000 tons of crude ore. Seventeen States were active producers in 1942 compared with 20 in 1941. Minnesota with 82,809,939 tons supplied 70 percent of the usable ore and Michigan with 17,499,060 tons, or 15 percent, was the second largest producer. These two States and Wisconsin (1,682,897 tons, or 1 percent) constitute the Lake Superior region, which supplied 86 percent of the domestic output. About three-fourths of the iron ore mined in 1942 came from open-pit mines.

Shipments of usable ore from mines totaled 118,707,133 short tons in 1942. Of this quantity, 91,972,925 tons, or 77 percent, was direct shipping ore for iron and steel furnaces. Also included in the total shipments are 74,036 tons for cement manufacture, 29,424 tons for paint and 34,842 tons for miscellaneous uses. Shipments and values of by-product ore for iron and steel furnace use are included for the first time in 1942. These shipments totaled 755,844 tons in 1942 valued at \$3,237,511.



# **PARMANCO** Horizontal Drills

PARMANCO Horizontal Drills are used exclusively in the Iron Range for horizontal drilling.

They are also used by a large percentage of the strip coal mines. The new PARMANCO Vertical Drill has revolutionized test drilling. Write us your drilling problems.



#### Western



#### States

#### CALIFORNIA

»»» The old Spanish mine in Nevada County, formerly a gold producer, is now providing barite for the war effort. As a gold mine it

bonate, a double salt of Na<sub>2</sub>CO<sub>3</sub> and NaHCO<sub>2</sub>) from Searles Lake, San Bernardino County. The soda ash was used mainly in the manufacture of soap, glass, paper, oil refining, sugar

A view of the Spanish Mine in Nevada County, Calif., where barite is being mined from a deposit which yielded gold ore in the early '30's

was shut down in 1938, and later on it was leased to the Industrial Minerals and Chemicals Co., of Berkeley, Calif. The daily output of barite is estimated to be around 30 tons of crude ore per day. L. N. Moretti is manager.

» » » The 1942 output of dolomite in California totaled 142,552 net tons, valued at \$413,469 and came from two properties in Monterey County and one each in Inyo, Los Angeles, Riverside, San Benito, and Tuolumne Counties. Not included in the above figures was a tonnage of dolomite from Tuolumne County that was burned for lime so included in the lime figures. The 1942 production was the largest annual yield on record in this state. The material shipped during the year was utilized for magnesium metal, for steel furnace flux and refractories, stucco dash, terrazzo, kalsomine, poultry grit, artstone, in mineral-wool, and for the manufacture of carbon dioxide.

» » The production of sodium salts in California in 1942 included soda ash, and trona, from plants at Owens Lake, Inyo County; and soda ash, salt cake, and trona (sequi-carrefining, and chemicals; and the trona for metallurgical purposes. The salt

cake or sodium sulphate was used in the manufacture of paper, glass and in chemicals.

#### Washington Wants To Know—

The Senate Small Business Committee is making a study of the operation of the Copper-Lead-Zinc quota-premium system. Mine operators are requested to inform the Committee about their experience with the War Production Board Quota Committee during the last six months with special emphasis on the reasons for rejection of quota applications, and the time element involved from application to final decision.

Letters should be addressed to Senate Small Business Committee, Room 13-B, Senate Office Building, Washington, D. C.

#### ARIZONA

» » A petition for investigation and certification of representatives of the employes of the Inspiration Consolidated Copper Co., Inspiration, Ariz., was filed by the International Union of Mine, Mill and Smelter Workers, Local No. 586, but was dismissed by the National Labor Relations Board following an election on May 28. The secret ballot showed 58 votes cast against the CIO Miami



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  - Made from special steels
- Made by craftsmen with years of experience

#### MACWHYTE COMPANY

2952 Fourteenth Avenue, Eenosha, Wiscensin Manufacturers of MACWHYTE PREformed and Internally Lubricated Wire Rope... MONARCH WHYTE STRAND Wire Rope... MACWHYTE Special Traction Elevator Cable... MACWHYTE Braided Wire Rope Singe... MACWHYTE Airest Cables and Tis-Roda.

Mill Depois: New York, Pittsburgh, Chicago Ft. Worth, Portland, Seattle, San Francisco



RNAL

Miners Union and 54 votes cast for the CIO.

» » » Women are playing an important role in surface jobs around the copper mines of Miami, Ariz., directing their attention to the giant drill presses in the machine shops, serving in tool rooms, as helpers to mechanics, operating soldering and welding torches, and handling machines in the concentrators.

Women have been employed by the Miami Copper Company since last year. They are also employed in the reduction mill and electrolytic plant of the Inspiration Consolidated Copper Company, and some are working in the International Smelting and Refining Company plant.

» » » Mining operations are to be started at the Boriana mine of the Molybdenum Corporation of America, located in the Hualpai Mountains near Yucca in Mohave County. Full production is expected to provide an output of 1,750 units of tungsten and a carload of copper concentrate per month. Boriana mine is called Mohave County's largest tungsten producer and is being operated from new development on the 700 and 800-ft. levels.

» » A companion development to the Castle Dome operation near the Miami area where more than \$10,-000,000 of Government funds have been spent in construction work during the past year, is now being planned. The Castle Dome property is now in operation.

» » » Heavy increases in mine valuations in Arizona have been continued in a new announcement by the Arizona State Tax Commission that the state's mineral properties for ad valorem tax purposes will be evaluated at \$154,845,418.98, an increase over a year ago of \$50,978,592.98.

Chief increase was that of the 1943 valuation placed on the Morenci branch of the Phelps Dodge Corporation, largest mining operation in the state, placing its valuation at \$46,-982,676, an increase of \$25,815,740.

New mines added are the Reymert near Superior, the Johns-Manville and Arizona Crysotile asbestos mine in Gila County, and the Carlota and Castle Dome properties in Gila County.

It was necessary for the State Tax Commission to remove several gold producers from the list, closed on Government orders: the U.S. Smelting and Refining Company mine at Goldroad; the Gold Standard, near Kingman; the Molybdenum Corporation of American mine at Mammoth; the Congress mine; the Golden Turkey, and property of the Liberty Hill and Winslow Mining Company in Yavapai County.

Mining companies may expect further increase next year if conditions remain favorable, it was said by Thad Moore, State Tax Commissioner. Ari-

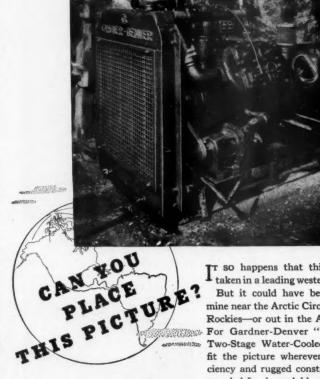
zona's state mines valuations have dropped as low as \$28,850,852, reaching that figure in 1934; and from 1931 until 1942 remained under \$100,000,-000 it was said.

#### WYOMING

» » Tests conducted by the United States Bureau of Mines have proved that the heating value of briquets formed from Wyoming subbituminous coal is approximately 12 percent greater per unit of weight when the coal is steam-dried preliminary to briquetting.

Because of its tendency to slack and disintegrate, subbituminous coal may be briquetted to facilitate transportation, storage, and use. The Bureau's tests, conducted at the Golden, Colo., field station, employed four commercial asphaltic binders in the preparation of specimen briquets which were subjected to the following tests: Compressive strength, accelerated slacking, abrasion, burning, and normal and accelerated weathering. Special equipment was constructed by research workers to conduct the experiments.

While steam-drying subbituminous



It so happens that this picture was taken in a leading western metal mine. But it could have been taken in a mine near the Arctic Circle-high in the Rockies-or out in the Arizona Desert. For Gardner-Denver "WB" Vertical Two-Stage Water-Cooled Compressors fit the picture wherever compact efficiency and rugged construction are demanded for dependable service.

#### FEATURES LIKE THESE MAKE GARDNER-DENVER "WB" COMPRESSORS ESPECIALLY RELIABLE IN REMOTE LOCATIONS:

- High efficiency operation, com-parable to that of large hori-zontal compressors—regard-less of altitude.
- Vital castings of GarDurloy, the modern, high-strength cast iren, developed by Gardner-Denver to give added strength and hardness where needed.
- 3. Fan-cooled, self-contained
- radiator cooling system for in-stallations where a continuous water supply is not available.
- Water-cooled air cylinders that assure cooler discharge temperatures—which results in longer life for air hose—lower upkeep for air tools.
- 5. Force-feed pressure lubrica-tion and Timken heavy-duty
- main bearings, for smooth, uninterrupted operation.
- "V" belt drive, semi-portable unit, with Diesel or gasoline unit, with Diesel or gasoline power, may be readily moved from location to location. The "WB" compressor is also supplied with direct motor mounting, or with sheave for "V" belt motor drive.

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coal stabilizes the briquets to some extent, it apparently imparts no significant improvements in physical properties, said the research workers, V.F. Parry, supervising engineer of the Golden station, and John B. Goodman, associate chemical engineer, whose experiments are described in a publication, "Briquetting Subbituminous Coal."

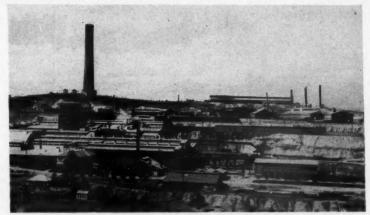
#### MONTANA

» » » Memoir No. 22, "Directory of Montana Oil and Gas Industry," issued by the Montana Bureau of Mines and Geology, is now ready for distribution to the public, according to announcement made recently by Dr. Francis A. Thomson, director of the Montana Bureau of Mines and Geology and president of the Montana School of Mines. The book consists of about 300 pages, most of which are given over to a directory of oil and gas companies operating in the various fields in Montana and those companies which now are not operating but were well known during their op-erations. The directory, besides containing a table of contents, is indexed with the names of all the companies contained therein and the names of all the individuals mentioned therein.

Eggleston B. Emrick of Conrad, Mont., who was head of the oil and gas division of the Mineral Resources Survey, did most of the compilation work. Mr. Emrick, Roy H. Earhart and Carl J. Trauerman are co-authors of the book.

#### IDAHO

- » » According to State Mine Inspector Arthur W. Campbell, Idaho is now the largest silver producing state in the nation, the second largest in lead output and the first in tungsten and antimony production. These two last named metals have been added to the state's heavy production list during the past year through operations at the Bradley mines in the Yellow Pine district in Valley county and the Ima mine at Patterson, in Lemhi County. In addition, he says, the state stands a good chance to become the nation's first or second largest zinc producer during 1943.
- » » The old Snowstorm copper mine, two miles east of Mullan, Idaho, is being reopened by a local company which purchased the property from the county for delinquent taxes. In the last year of operation (1914) the company shipped 60,558 tons of ore. The present owners are said to be interested in the silica content of the ore, as well as the copper. The old Snowstorm smelter contract called for 90 per cent silica, which the smelter used for converter lining. The Snowstorm ore body was



The Great Falls refinery and electrolytic zinc plant of the Anaconda Copper Mining Co. at Great Falls, Mont.

a bedded vein of Revett quartzite and the commercially mineralized content of the vein was approximately 40 ft. wide and 750 ft. long.

- » » Because of a labor shortage which has practically reduced its Morning mine production to about half milling capacity, the Federal Mining & Smelting Company has started milling the old mine dumps, which are estimated to contain upwards of one million tons of ore that can be handled and milled at a small profit under the zero quota and premium payment plan provided by Government agencies. The company's Morning mine operation is short 150 to 200 men.
- » » The 200-ton slime mill erected on the flats west of Kellogg by the Gibbonsville Mining company is reported to be resuming operations under the management of H. L. Hazen, formerly metallurgical engineer in charge of the Standard cyanide operation near Lovelock, Nev. The Kellogg slime plant operated several months last year but results were unsatisfactory. The flats mentioned are estimated to contain several million tons of zinc-lead slimes.
- » » » Most important mineral development in the Coeur d'Alene district in recent months is the discovery of a shoot of commercial grade lead-silver ore in the Chester vein of the Polaris Mining Company, controlled by Hecla. The find was made in a crosscut from a drift following the Polaris vein from the 2,700 level of the adjoining Sunshine mine, which opens the vein systems approximately 1,400 ft. deeper than the lowest Polaris workings. The Chester vein discovery is in Polaris ground west of the Chester claim and where crosscut the vein shows 10 in. wide of galena ore which, according to a report made by President L. E. Hanley to Hecla

stockholders, assays 74 per cent lead and 145 oz. in silver. This is the first development of ore of this character in the Coeur d'Alene district silver belt. Other productive veins of the belt, such as Sunshine, Polaris and Coeur d'Alene mines, produce a tetrahedrite ore, the mineral combination of which is silver, copper, antimony and lead.

#### UTAH

- » » A long unused blast furnace from Joilet, Ill., has been dismantled and rebuilt at the Ironton (Utah) plant of the Columbia Steel and is now in operation. The reconditioned furnace and cast house will turn out 900 tons of pig iron per day, increasing the plant's output by 50 percent. Construction at the company's Geneva plant is on its last lap. This new \$150,000,000 unit, consisting of three new 1,200-ton blast furnaces, will be producing by the end of the year, it is estimated.
- » » » Construction at the new mill of the Ohio Copper Company at the Big Indian property located about six miles south of LaSal, Utah, is progressing satisfactorily. The plant is about 60 percent completed and should be ready for operation around October 1. A process of combined leaching and precipitation is to be applied to the low grade copper ore at the Big Indian, and it is planned to treat approximately 250 tons per day. Meanwhile, operations are progressing satisfactorily at the Ohio Copper plant at Lark, Utah, where 1,500 tons of copper tailings per day are being treated. Percy C. Kettle, Dooley Building, Salt Lake City, is president and general manager of the company.
- » » Announcement that the Army would furlough 4,500 miners to the metal mining industry was greeted

with enthusiasm by Utah operators who have been unable to maintain a balanced operation during the past six months due to the serious manpower shortage. Announcement of the plan to furlough the men was made on July 20, and the first are scheduled to be released on August 12.

#### Wheels

(Continued from page 48)

were several members of the House who strove to change the sales price of silver in the Green bill to "not less than 50 cents per ounce." In a final compromise, the Celler amendment to the Treasury-Post Office Appropriation bill, which would have seriously interfered with Treasury administration of the silver purchase laws, was withdrawn and the Green Bill was reported and passed by the House without amendment. Thus, for the time being at least, the silver controversy is held in abeyance, and in addition to ample quantities of silver for war uses, amounts are available to flatware, jewelry and similar users.

#### Stockpiling Minerals

Hearings were held in June and July on a bill by Senator James G. Scrugham, of Nevada, having as one of its purposes the stimulation of current production of strategic and critical minerals by assuring a measure of post-war security to small or marginal mines. It would provide adequate stockpiles for any future national emergency and seeks to avoid economic distress and to maintain employment at mining operations following the war by protecting against post-war dumping of accumulated metal and mineral surpluses.

Without exception the witnesses supported the general policy of stockpiling, developing the numerous features of the problem and suggesting some amendments. Those testifying were Representative Charles A. Plumley, of New Hampshire; Delegate Anthony J. Dimond, of Alaska; Representatives John R. Murdock, of Arizona, and Compton I. White of Idaho; Director R. R. Sayers, U. S. Bureau of Mines; Secretary Julian D. Conover, American Mining Congress; Thomas T. Reed, Columbia University William C. Broadgate, Arizona Small Mine Operators Association; Franklin G. Pardee, Appraiser of Mines for the state of Michigan; J. Carson Adkerson, American Manganese Producers Association; R. C. Allen, executive vice president, Oglebay Norton & Co.; F. E. Wormser, secretary, Lead Industries Association; Sidney H. Ball, mining engineer, New York; R. R. Eckert, secretary, U. S. Copper Association; D. A. Callahan, vice president, American Mining Congress, Wallace, Idaho; G. W. Feaga, American Alloys and Chemicals Company.

#### War Conference

(Continued from page 32)

"Thus far we have given our countrymen on the fighting fronts good cause to doubt us. In fact, the German homefront is withstanding adversity more effectively than we are accepting success. Wherever people gather, the trend of the conversation about the war has changed, and dangerously so. No longer is there any speculation as to how the war will end, only how soon.

"This over-confidence would be bad enough if its effect could be confined to the public here at home. But it becomes a double-barreled menace when it boomrangs back against the men who deserve it least—those on the firing front."

Lieutenant Kenneth Taylor, United States Navy, introduced Fire Controlman Harrison, who related his experiences on the Cruiser San Francisco at Pearl Harbor on December 7 and in the battle of Guadalcanal. His closing remarks were "Looking back on it now, it seems that good old fashioned 'guts' is what took us through the battle and got us back to port. It takes plenty of 'guts' to do the job that has to be done at sea, and I'll bet it takes plenty to do your job too, to stick in there day after day no matter what happens. But I know you've got what it takes. Those shells you turned out stood us in mighty good stead that night off Guadalcanal. We had plenty of them and we knew that they'd always go off when they hit. Jap ships fire plenty of duds, but it's an exception when it happens to American ammunition. Don't let anything keep you from turning out those shells, on time or ahead of time. You feed them to us! We'll feed them to the Japs!"

#### "L" and "M" Order Exemption

S EEKING to eliminate needless red tape in purchasing procedure, the following resolution was adopted at the recent Coal Mine War Conference of the American Mining Congress, held in Cincinnati.

WHEREAS the coal mining industry of the United States is called upon for maximum production of coal to meet the combined requirements of our war industries and essential civilian activities, and

WHEREAS the continued production of coal requires a steady minimum supply of new machinery and equipment, repair parts and operating supplies to maintain basic efficiency and safety throughout mining operations, and

mining operations, and

WHEREAS allotments and preference ratings for such equipment and materials are provided for expressly by Preference Rating Order P-56, which includes the statement that "Notwithstanding the provisions of any other order or regulation of the War Production Board, no producer shall acquire any mining machinery or equipment, or maintenance, repair, or operating supplies through use of a preference rating or other form of priorities assistance assigned otherwise than pursuant to this order or an order in the P-19 series," and

WHEREAS the War Production Board also requires compliance with certain other regulations known as General Preference ("M") Orders and Limitation ("L") Orders, which in themselves, together with their constant amendments and directives, are so numerous and complex as to be beyond the ability of any operating organization to fully comprehend and comply with—and compliance with which in many cases places the operator in direct violation of the provisions of Preference Rating Order P-56, and

Whereas the coal mining industry, wishing to cooperate fully with the Mining Division of the War Production Board in its program of securing maximum mine production with minimum usage of critical materials, considers it essential that the confusion and loss of effective working time resulting from the present overcomplicated procedures for obtaining equipment and supplies be eliminated, and that the industry be removed from the position of being forced to be in violation of many War Production Board regulations, and

Wheeeas the problem of the coal mining industry, as stated heretofore, is common to the other branches of the mining industry of the United States: Therefore be it

Resolved, That the representatives of the coal mining industry assembled at the 1943 Coal Mine War Conference of the American Mining Congress at Cincinnati, Ohio, July 20, petition the War Production Board

(1) to charge its Mining Division with full and complete authority over all clearances, allocations, allotments, and assignments of preference ratings, that may be required for the acquisition of any maintenance, repair or operating supplies, or other machinery or equipment for use by the producers specified in Preference Rating Orders P-56 and P-73, and

(2) to expressly relieve such producers from the responsibility of individual compliance with the provisions of any and all "L" and "M" orders.

The above resolution was unanimously adopted at the Coal Mine War Conference of the American Mining Congress, Cincinnati, Ohio, July 20, 1943.

JULIAN D. CONOVER, Secretary, The American Mining Congress.

#### L. E. YOUNG

Consulting Engineer

Mine Mechanization Mine Management

Oliver Building Pittsburgh, Pa.

#### PETER F. LOFTUS Consulting Engineers

ENGINEERING AND ECONOMIC SUR-VEYS, ANALYSES AND REPORTS ON POWER APPLICATIONS AND POWER COST PROBLEMS OF THE COAL MIN-ING INDUSTRY

Oliver Building Pittsburgh, Pa.

THE EXECUTIVE WHO STOPS TO THINK .



# Knows that "10% for War Bonds isn't enough these days"

Workers' Living Costs going up... and Income and Victory Tax now deducted at source for thousands of workers...

y, nrd ne tiat kerng

m iord inis he

at of inar

be inor use

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usly fer-

NAL

Check! You're perfectly right . . . but all these burdens are more than balanced by much higher FAMILY INCOMES for most of your workers!

Millions of new workers have entered the picture. Millions of women who never worked before. Millions of others who never began to earn what they are getting today! A 10% Pay-Roll Allotment for War Bonds from the wages of the family bread-winner is one thing—a 10% Pay-Roll Allotment from each of several workers in the same family is quite another matter! Why, in many such cases, it could well be jacked up to 30%—50% or even more of the family's new money!

That's why the Treasury Department now urges you to revise your War Bond thinking—and your War Bond selling—on the basis of family incomes. The current War Bond campaign is built around the family unit—and labor-management sales programs should be revised accordingly.

For details get in touch with your local War Savings Staff which will supply you with all necessary material for the proper presentation of the new plan.

Last year's bonds got us started—this year's bonds are to win! So let's all raise our sights, and get going. If we all pull together, we'll put it over with a bang!

This space is a contribution to America's all-out war effort by

THE MINING CONGRESS JOURNAL



you've done your bit
... now do your best!

\* \* \* \* \* \* \* \* \* \* \* \*

# Manufactutets Forum

#### New In-Plant Feeding System for War Workers

Hot and cold foods, packed side by side to form a complete meal, may now be served up to five hours after filling through a new system for inplant feeding of war workers just announced by Mealpack, Inc., 152 West 42nd Street, New York City.

The Mealpack Container, around which the system is built, consists of five earthenware food and beverage compartments, insulated within durable attractively finished pressed steel





finished in several standard colors. Each compartment is sealed with snap-in paper covers. A menu for preordering "tomorrow's meal today" is then enclosed and the entire container sealed for delivery to the worker who has ordered the meal. This seal-lock applied at the kitchen or caterer's also carries the worker's shop number to permit ready identification upon arrival at or near his working station and prevents tampering with contents enroute.

Distribution methods from kitchen to worker vary with the size and nature of the operations using the system but always provide for having every man's meal at his elbow when the whistle blows, thus eliminating any time lost getting to and from the food line or waiting to be served. When unsealed the top lid becomes a comfortable lap tray for holding the container. The meal may be eaten wherever the worker choses inside the plant or outside in the sunshine.

When finished he selects and orders the next meal from the menu which simultaneously authorizes charging his account, thus eliminating any cash handling. He then reseals it in the container which he now puts back on the rack ready for collection and reuse.

Advantages claimed include lower costs per worker fed, nutritious vitamin-balanced meals at lower prices, ready use of idle available kitchen equipment or caterer's services within a radius of several miles from the operation, elimination of staggered feeding schedules and food waste, reduced absenteeism and added time for each worker to relax and enjoy his midshift meal.

For the duration, Mealpack Containers are available only for use by essential war plants, shipyards, mines, etc. (or their caterers), where new or supplementary in-plant feeding is advisable in connection with the Food Distribution Administration's nutrition-in-industry program.

#### Lifting on the Level

A single unit sling handling three tons and having the feature of leveling the item lifted is announced by the Macwhyte Company, Kenosha, Wis. The sling has a special patented feature which enables the rope to equalize itself and lift unbalanced loads in a level position. Called the Macwhyte Caldwell "Level-Lift" Type CSE Sling after thorough trials in industry, the unit is said to be easy to use, save time and labor, especially in handling long pipes, boxes, steel and flasks.



It is made in one size for handling loads up to three tons, using one unit, or loads up to six tons when used in pairs. These slings have a safety factor of five.

#### **New Dragline Bucket**

The Dragliner is the trade name for a new dragline bucket designed and sold by the Daniels-Murtaugh Company, Cedar Rapids, Iowa, equipment designing engineers. It is being built by the Universal Engineering Corp. of Cedar Rapids, Iowa.

It is said to have successfully come through tough service tests and is designed throughout to withstand severe operating condition. Ribbed reinforcing sections are present at all points of stress and wear.

Features of the unit are the combination bumpers and drag chain hitches. When the empty bucket is dropped it lands on the bumpers, which are designed to ably take this shock. In this way the arch, which is back of

the bumpers, is protected. These bumpers also shield the drag hitches so that the bucket does not fall on them.

Replaceable manganese steel lips (U. S. Patent 2256488) gives support to the arch at its base. The ends of the arch fit into recesses in the lip casting. The bumpers firmly tie lip, arch and body together. There are no interior obstructions to retard digging and the bucket shape is said to be conducive to fast loading and clean dump-

Lips with either for or five teeth are available. Either a one-piece tooth or two-piece tooth with renewable point is available. Both types are keyed to lip in the customary manner.

## Brushes for Ring and Commutator Applications

New grades of brushes for ring and commutator applications have been developed for the electrical industries by Keystone Carbon Company, St. Marys, Pa. Some designs are made in various grades of copper-graphite and silver-copper-graphite, created as a part of the company's expanding line of individually designed small brushes to meet the demands of today's service.

Certain types were developed specifically for current control apparatus where extreme precision is vital. The shunts are moulded into the brush and establish a perfect connection. Low contact drop, high current carrying

capacity and a low coefficient of friction are said to be inherent characteristics of these brushes.

### Torq Recorder for Improved Thickener Operation

To provide an accurate continuous record of thickener operation the Dorr Torq Recorder has been developed by the Dorr Company of New York. Designed for use on Dorr "A" Thickeners equipped with a standard overload alarm, it is particularly applicable where appreciable fluctuations in the drive unit load are caused by variations in solids accumulation in the thickener. The recorder can be installed on Type "A" thickeners now in use as well as on new units.

The Torq Recorder consists of two electrically connected control parts—the transmitting unit and the recording unit. The transmitting unit is built into the standard overload alarm on the drive head, while the recording unit can be located at the control station or any convenient point offering easy access to the operator.

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As the load develops in the thickener, the impulse is carried directly to the transmitting unit from the overload alarm mechanism. The transmitting unit in turn carries the impulse to the recording unit, where it is transcribed upon a calibrated 24hour chart, 12 inches in diameter. All variations are continuously recorded in this manner—providing a complete record of thickener operation for each 24-hour period

24-hour period. In addition to the obvious advantages of having the complete operating history of the thickener available for analysis in the event of difficult operation, the Torq Recorder provides valuable help in obtaining maximum results as well. As the recorder will indicate the gradual accumulation of solids, the operator will be able to avoid troublesome overloads or temporary shutdowns by speeding up the pump discharge. The operator will also find it an easy matter to obtain maximum density in the underflow by regulating the speed or stroke of the pump, without any danger of serious overloads developing.

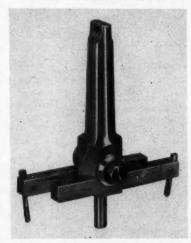
Reasonable attention to the record of operation precludes any chance of an overload developing that would be serious enough to cause the standard overload alarm to cut the motor.

#### Adjustable Cutter for Metals and Rubber

Supplementing their line of Clark Adjustable Cutting Tools, the Robert H. Clark Company of 3424 Sunset Boulevard, Los Angeles 26, Calif., announces the new Clark Fly Cutter for cutting holes or discs in metals of thicknesses up to 1 in., including boiler plate, stainless steel, cast iron, plastics, and other "problem" mate-

rials. Among the many difficult operations which have been successfully handled by the new fly cutter is that of cutting washers and gaskets from "live" rubber and other hard-to-work substances.

The tool, shown herewith, is obtain-



able with straight or tapered shank and covers expansions of 4 in. to 10 in. in diameter, including all decimal or fractional intermediate sizes.

With this addition to the Clark Adjustable Hole Cutter line, the manufacturers have provided tools for cutting holes from % in. to 10 in. in diameter and straight side discs from 4 in. to 10 in. in diameter.

Models for cutting diameters from % in. to 5 in., and for cutting holes in pipe and curved surfaces, have three cutting blades. Those for cutting diameters from 4 in. to 10 in. are the two-blade fly cutter type as illustrated.

#### CATALOGS AND BULLETINS

ARIDIFIER. Logan Engineering Co., 4900 Lawrence Ave., Chicago, Ill. Bulletin 543 describes features of the company's unit which cleans and dries compressed air by centrifugal force. 8 pp.

AUTOMATIC LIFT SLING. Mactichyte Company, Kenosha, Wis. Leaflet describes operating features and illustrates application of the company's recently announced "Level-Lift" Sling.

CARE OF MINE LOCOMOTIVES. Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa. Booklet B-3150. A handy ring-bound booklet designed to aid in extending the life of mine locomotives. It gives operating tips, trouble checks, and includes instructions, reports and charts covering all the principal parts of mine locomotives as well as a lubrication chart. 33 pp.

CONCENTRATING TABLE. The Deister Concentrator Co., Ft. Wayne, Ind. Bulletin No. 118-A describes and illustrates features of the manufacturers No. 6 Super Duty Diagonal-Deck Concentrating Table. Features of the manufacturer's magnetic drain plugs are also described. 4 pp.

CONSERVING SAFETY EQUIP-MENT. Mine Safety Appliances Co.,

Braddock, Thomas & Meade Sts., Pittsburgh, Pa. The company has recently issued a booklet entitled "How to Make Your Safety Equipment Last Longer." The booklet is illustrated with drawings and it describes the care necessary to conserve all types of personal protective equipment from protective hats, gas masks, respirators and safety clothing. 32 pp.

DRAGLINE BUCKETS. Daniels-Murtaugh Co., 625-C Ave., Cedar Rapids, Iowa. Bulletin describes features of the manufacturer's new dragline bucket, having the combination of bumpers and drag chain hitches. 8 pp.

EYESHIELD. Mine Safety Appliances Co., Braddock, Thomas & Mead Sts., Pittsburgh, Pa. Bulletin No. CE-18 is a leaflet which describes and illustrates the manufacturer's Skullgard Eyeshield. 2 pp.

MANGANESE STEEL. American Manganese Steel Div., American Brake Shoe Co., Chicago Heights, Ill. Bulletin No. 543-G is an attractively illustrated brochure showing the numerous uses of manganese steel in various industries. Questions about manganese steel are answered and a brief history of the alloy is also included. 48 pp.

METAL-CLAD SWITCHGEAR.
Roller-Smith Co., Bethlehem, Pa. Catalog 1110 describes and illustrates features of the manufacturer's horizontal Drawout Metal-Clad Switchgear Units.
12 pp.

METAL RECLAMATION. Hardinge Company, Incorporated, York, Pa. Bulletin No. 8-A illustrates a group of flow sheets for the recovery of brass from foundry waste, and the recovery of aluminum, mangnesium and zinc from dross and skimmings. 12 pp.

MINE LOCOMOTIVES. Westing-house Elec. & Mfg. Co., East Pittsburgh, Pa. Bulletin 3232 describes and illustrates features of design and operation of the manufacturer's explosion tested locomotives for use in operations where gas exists in explosive quantities or mixtures. 20 pp.

OIL CIRCUIT BREAKERS. Roller-Smith Co., Bethlehem, Pa. Catalog 3350 describes and illustrates the company's 15,000-volt oil circuit breakers for indoor service. 12 pp.

PIPE WELDING. Air Reduction, 60 East 42nd St., New York, N. Y. The title of the Bulletin is "The Welding of Piping," a comprehensive discussion of the best practice to follow in this work. 16 pp.

RESPIRATOR. Mine Safety Appliances Oo., Braddock, Thomas and Meade Sts., Pittaburgh, Pa. Bulletin No. CM-6 describes and illustrates features of the company's new plastic Clear-Vue Dustfoe Respirator. 2 pp.

THICKENERS. Hardinge Company Incorporated, York, Pa. Bulletin 31-C describes the company's mechanism known as the "Auto-Raise" Thickener. 1 pp.

WELDING ALUMINUM. Aluminum Co. of America, Pittsburgh, Pa. This is an attractive 5½ x 8½-in. ring-bound booklet on the practice of welding as well as brazing aluminum. 99 pp.

WORKER'S SKIN PROTECTOR.

Mine Safety Appliances Co., Braddock,
Thomas and Meade Sts., Pittsburgh, Pa.
Bulletin 4211 describes a product known
as Fend, which comprises a complete line
of safety engineered, medically-correct,
highly-effective creams and lotions which
are said to create an effective barrier on
the worker's skin against industrial dermatitis. 16 pp.

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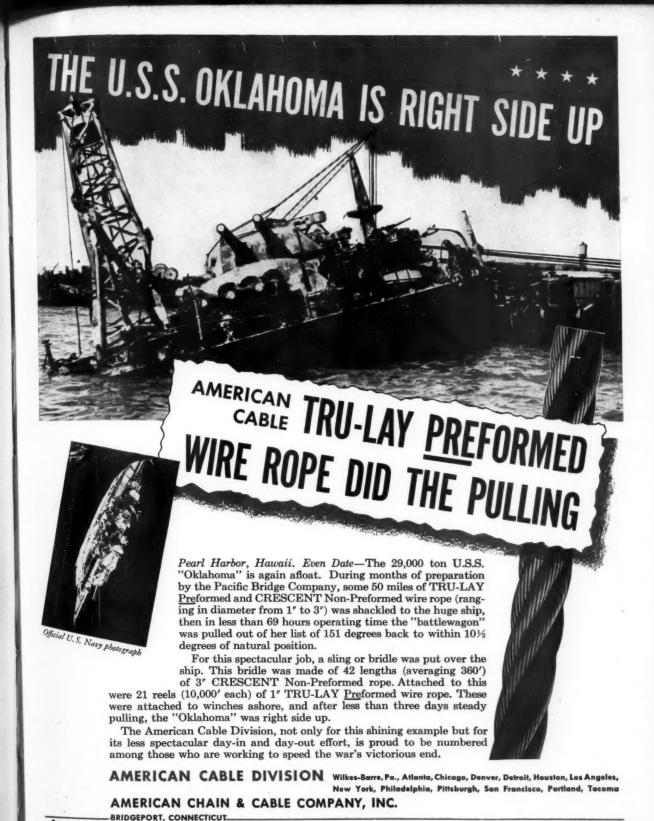


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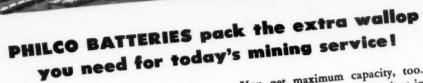
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